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ABSTRACT

The tri-dimensional mandate of the land-grant institution--to teach, to research, and to serve--finds a common meeting place at the New Mexico State University. The New Mexico State University has tri-cultural concerns arising from the special needs of the population that it serves. The age-old problem of water in an arid land, the new challenge of the exploration of space, "border" Spanish, tourism, homemaking, and the uses of the ranges and forests are all subjects of concern. (Author/KE)

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Environment, People, and Culture

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NEW MEXICO STATE UNIVERSITY:
A Land-Grant Institution

Environment, People, and Culture

New Mexico State University:
A Land-Grant Institution

Volume 1, Part 1

A series of faculty papers prepared on the occasion of the inaugural of Gerald W. Thomas as the sixteenth president of New Mexico State University.

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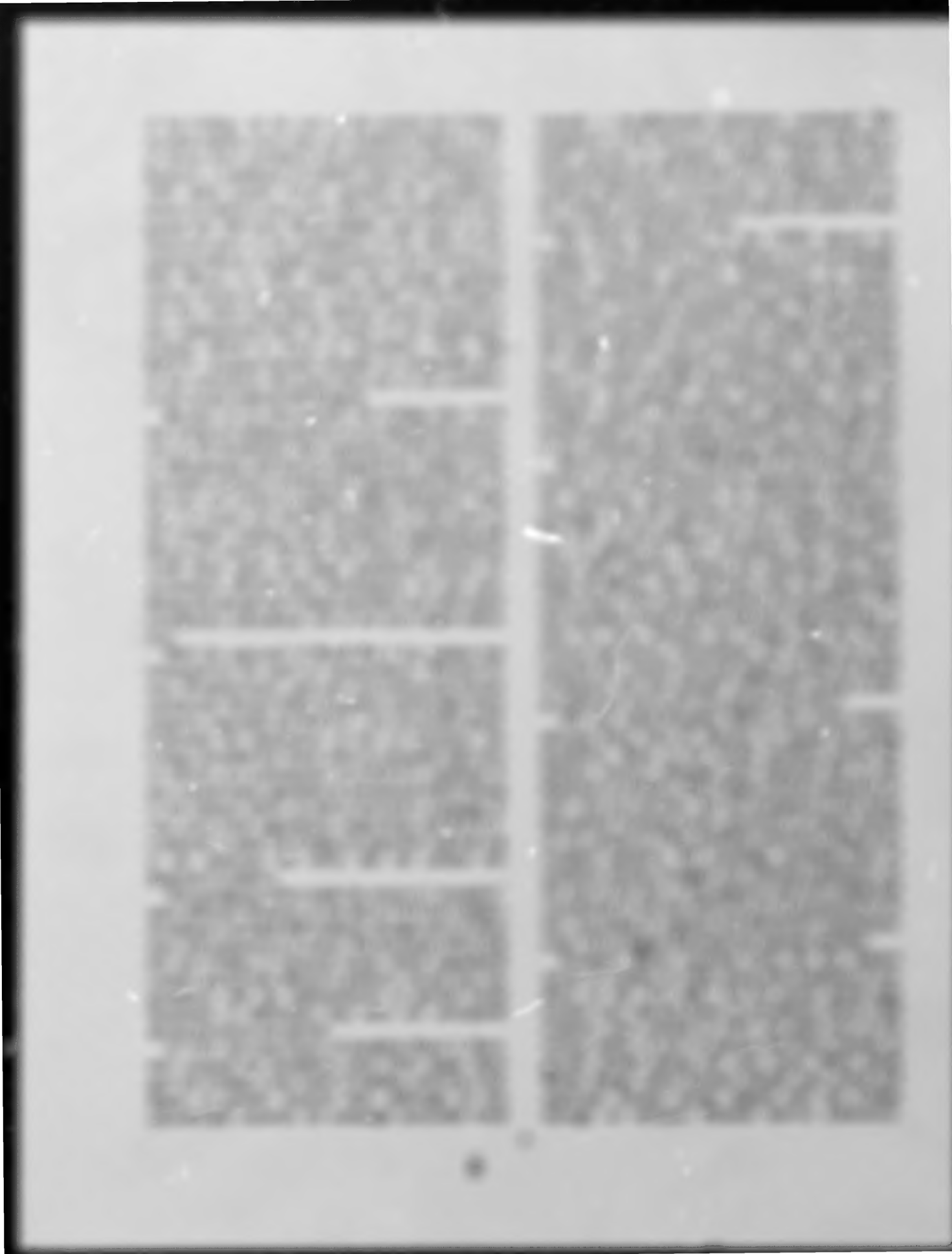
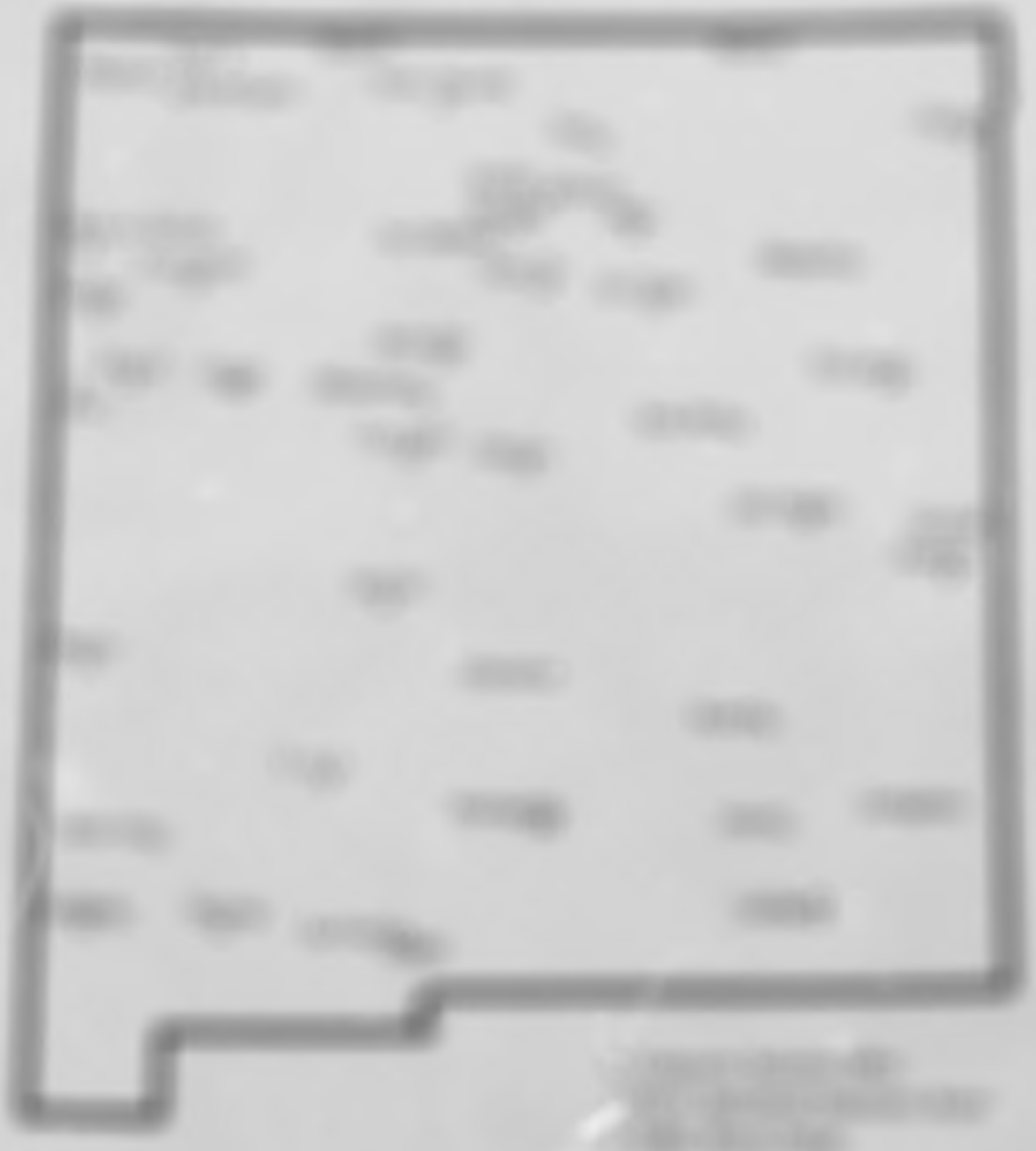




ment expand. There will not only be augmented needs for food from these lands, but these needs must be met while maintaining scenic vistas, hunting and fishing areas, and open spaces necessary to nourish the soul of man.

The Agricultural Experiment Station of New Mexico State University has conducted research on range and forest lands since its inception in 1889. The primary objectives have been to study methods to improve or maintain the resources while producing maximum harvestable products. An extensive volume of research findings has been made available through publications and Extension Service personnel for use by the people of New Mexico. This communication has significantly influenced the improved agricultural utilization of the state's range and forest resources.

The income received by ranchers from livestock has continued to increase. In 1959 the cash receipts from livestock were $135 million compared with $240 million in 1968. Pounds of beef produced in New Mexico increased 86 percent from 1924 to 1963 while cattle numbers actually decreased slightly.

Currently, 19 different research projects are under way in the Agricultural Experiment Station pertaining specifically to range and forest resources and their management.

Through the cooperation and help of numerous public agencies such as Agricultural Research Service, Forest Service, Bureau of Land Management, Soil Conservation Service, and Game and Fish Department, New Mexico State University serves the people of the state through continued advancements in agricultural production technology.

The future responsibility of New Mexico State University in developing the state's natural resources will become increasingly important. The need for greater productivity from our natural resources is increasing faster even than the population, especially from areas with the climatic and environmental problems characteristic of New Mexico's arid lands. The low and extremely variable rainfall, high temperatures, and high rate of evaporation, coupled with serious brush invasion and soil erosion, drastically limit productivity on New Mexico rangelands. Future development of range and forest resources demands solutions to the following problems:

Brush control and reseeding. Control of undesirable brush and replacing it with productive species are two of the greatest problems facing land resource scientists in New Mexico. An estimated 50 percent of the land area of New Mexico is in need of brush control. Much of the soil erosion from rangeland comes from brush-infested areas. Unless reliable and economically efficient methods are developed to control these low-value species and replace them with desirable grasses and shrubs, the land will continue to become less productive. This will require innovations in machinery and equipment, development of new varieties of native and introduced plants through selection and breeding, and development of safe new selective herbicides. Techniques must be developed to improve the micro-environment to meet the requirements of the plant to be seeded.

Water management. In arid lands, management of the meager precipitation is of utmost importance. Methods are needed to better utilize the high-intensity, short-duration type of rainfall to retain the water on the soil as well as reduce soil erosion. Techniques for "water harvesting" must be developed whereby micro-watersheds provide runoff water for concentrating moisture in small, but highly productive sites. Also, water from sites of low potential must be moved to areas of high potential.

Energy relationships in various range and forest ecosystems. This will require basic studies in analyses of the flow of energy through the ecosystem. These questions must be answered if we are to best use the energy produced: How much of the sun's energy is captured by various vegetation types and converted to plant life? How much of this energy can be harvested by man or his animals and maintain productivity in the system? What are optimum densities of plants on forest and range for maximum use of solar energy? What is the best method of harvesting the plant energy?

The use of animals other than domestic livestock needs to be studied. Plants such as creosotebush and mesquite are useless for domestic livestock, but, documentation exists that such exotic animals as the camel have grazed creosotebush and mesquite plants and done well. Perhaps these plant communities represent ecological niches yet unfilled by the proper grazing animal. Finally, man's additions to the environment through fertilizers and pesticides must be evaluated, as to their effects on the flow of energy and nutrients in forest and range ecosystems.

Quality of the natural environment. Soil erosion, siltation, and dust storms are still New Mexico's major source of environmental pollution. These not only cause air and water pollution but represent irreplaceable losses of topsoil, already critically limiting in New Mexico. Study must continue on effects of industrial pollution on forest and range resources, since both air and water pollution have influences on plant life.

Possibilities for increasing usefulness of range and forest resources span from radical innovations to patient application of principles discovered from past research. Much of the future of the state will hinge upon the imagination and ingenuity of researchers and teachers at New Mexico State University. Future managers of the state's vast public range and forest resources will be trained with tomorrow's needs for the state and nation in mind.

With sustained confidence and support from the people of New Mexico, research will continue to unlock doors into even greater use of the state's arid and semi-arid lands.

–Don D. Dwyer,
Carlton H. Herbel,
Charles A. Davis

RESEARCH IN TOURISM AND RECREATION

On an average day, 7000 vehicles "whoosh along" Interstate 40 across New Mexico. At the same time, more than 5000 are traveling through southern New Mexico on Interstate 10. In August, the average reaches 10,500 vehicles on Interstate 40 and falls to 3500 in February. On Interstate 10, the peak is 5600 in July, and the low of 4109 is recorded in May. The vast majority of these travelers are not here primarily to see the "Land of Enchantment." They tend to think of New Mexico in terms of driving hours required to get across it. They are here because the shortest distance between two points of their trip crosses New Mexico.

Although New Mexico may not be important to the thousands passing through, these motorists are vitally important to a sizable percentage of New Mexico residents who are in the business of providing goods and services. Economic growth in New Mexico depends on the ability of its individual communities to export goods and services to points outside the state, or market goods and services to persons who come from outside the state. The availability of large sections of sparsely populated land and good climate has brought the White Sands Missile Range, Holloman Air Force Base, the research facilities at Los Alamos to the state. New Mexico is, in effect, selling the services of its land area and favorable weather. Uranium, copper, and agricultural products are obvious export industries which contribute significantly to economic development. Demand for these various exports ebbs and flows, with the result that communities such as Grants experience explosive population growth, followed by equally painful declines as government purchases of uranium are sharply curtailed or stopped. Government requirements change, air bases and missile sites are closed, the NASA Apollo research facility is scheduled to be put into mothballs, with consequent economic dislocation and hardship to the communities and individuals involved. Probably the most dependable export industry in the state insofar as growth is concerned is tourism and recreation.

Although the most scenic portions of the state are not immediately adjacent to the major highways, attractive and sufficient publicity will detain an increasing portion of travelers long enough to acquaint them with nearby possibilities for sight-seeing and entertainment. Average daily traffic volumes and percentage rates of increase for several key continuous recorder stations are given below.

New Mexico highways are carrying ever-increasing numbers of people through the state. The interstate highway system enables them to move through faster and stay less time within the borders of the state—unless accommodations and tourist attractions are adequate to slow them down in the pell-mell rush to points farther west or east. Some evidence of success in this endeavor can be observed in Table 1.

Table 1

Changes in Average Daily Traffic
and Percentages of Out-of-State Passenger Cars,
Selected Locations, 1960-1969

Location	Average Daily Traffic 1969	Percentage Out-of-State Passenger Cars 1960	1969	Percentage Traffic Change Since 1960	Annual Percentage Change
I 40 W of Clines Corners	6,068	63%	55%	+35	+4
I 40 W of Tucumcari	5,613	70%	61%	+41	+5
I 40 E of Grants	7,594	51%	48%	+37	+4
I 40 W of Deming	5,132	61%	55%	+34	+4
I 25 N of Las Cruces	2,252		27%	NA (Avail. since 1966)	+14
I 25 S of Santa Fe	7,719	20%	19%	+76	+8
I 25 S of Raton	1,647	39%	42%	+47	+5
US 64/84/285 N of Santa Fe	10,018	14%	13%	+61	+7
I 25 S of Socorro	3,138		29%	NA (Avail. since 1962)	+6
US 64 S of Taos	5,501	18%	17%	+58	+6
US 64/87 E of Raton	1,480	57%	60%	+50	+6

The largest percentage increases in traffic are in the recreational areas such as Taos, Santa Fe, Caballo and Elephant Butte dams, and Raton, where the annual rates of increase range from 6 to 14 percent, while interstate traffic in general has increased by four or five percent per year depending upon location. With the exception of Raton, these are areas of low out-of-state percentage. Traffic counts on US 54-70-82 north of Alamogordo show an average annual increase of only two percent and east of Hondo on US 70-380 only one percent since 1960, indicating that Ruidoso has not shared proportionately in the heavier flow of transcontinental traffic. Only 27 percent of Alamogordo traffic and 30 percent of the Hondo traffic are from out-of-state.

Annual visits to Carlsbad Caverns in 1969 were 672,930, compared with 537,015 in 1960, for an annual increase of about three and one-half percent. State parks and recreation sites seem to be attracting residents and visitors alike in phenomenal numbers. For the latest year available (1968), 25 parks recorded 3,876,551 visitors, compared with only 1,257,000 visitors in 1960, for an increase of 208 percent (24 percent per year). National parks and monuments, on the other hand, had 1,527,430 visitors in 1969, compared with 1,139,497 in 1960, for an increase of 34 percent (about 5 percent per year).

To increase or even maintain the state's share of tourist business will take far more than Chamber of Commerce brochures, and an attractive *New Mexico* magazine, as valuable as these may be. Tourist destinations generally fall into two categories: intermediate stops and destinations. Each trip is comprised of a total length, single or multiple destinations, and usually stopovers—a mechanical by-product of the trip route. A destination area is defined as "a place having characteristics known to a sufficient number of potential visitors to justify it as an entity, independently attracting and motivating travel to itself." A destination area must appeal to a great many sub-markets.

Out-of-state tourists travel in a group or with family. To maintain tourist interest and subsequently a stopover of 24 hours or more, at least three attractions per day for each person in the party must be available—for boating, fishing, museums, racing, business appointments, golf, shopping opportunities for Indian jewelry or rugs, historical monuments, etc. Given the competition of Arizona and California, New Mexico will have difficulty in becoming more than an overnite stop.

Employment in lodging, largely devoted to services to visitors, constituted approximately three percent of the state's covered employment in 1968 and as much as 22 percent in Hidalgo County, 11 percent Lincoln County, 7 percent in Sierra, 6 percent in Luna County, etc. A large percentage of the eating-drinking and service station employment in the counties through which the major highways pass is also attributable to tourist trade.

The differential growth rates of tourist–related employment as measured by lodging employment is shown in Table 2.

Table 2
Lodging Employment in Major Tourist Counties

	1960	1968	Percentage Change	Highway Location
		Interstate 40		
Bernalillo	1398	1389	- 1	I 40 and 10
Guadalupe	45	87	+93	I 40
McKinley	206	368	+79	I 40
Quay	85	223	+162	I 40 and US 54
Torrance	6	9	+50	I 40
Valencia	64	58	- 9	I 40
		Interstate 25		
Colfax	124	97	- 22	I 25 and US 72
Santa Fe	442	585	+32	I 25
Sierra	26	54	+108	I 25
Socorro	42	35	- 17	I 25
		Interstate 10		
Dona Ana	114	271	+138	I 10
Hidalgo	144	176	+22	I 10
Luna	39	111	+185	I 10
Eddy	256	284	+11	US 285-62-180
Lincoln	30	128	+320	70-350-54
Totals	3021	3875	+28	
Totals without Bernalillo	1628	2486	+53	
New Mexico	3850	5322	+38	

Although the state gained 38 percent in such employment between 1960 and 1968, Bernalillo County, in which Albuquerque is located, actually declined slightly (by one percent) during the period. Its share of total lodging employment fell from 36 percent in 1960 to 26 percent in 1968. Notable increases were scored in Lincoln County (+320 percent), Quay (162 percent), Luna (185 percent), Dona Ana (+138 percent), Sierra (+108 percent), Guadalupe (+93 percent), and McKinley (+79 percent).

The interstate system was not completed through Albuquerque in 1968 (when the survey was made), but west-bound travelers could stay on the freeway into the center of town where they were detoured over to Lomas Boulevard or Central Avenue. They thus bypassed all tourist facilities in the eastern sector of the city. As none of the competitive communities on I 40 such as Gallup, Grants, Santa Rosa, or Tucumcari were bypassed, these smaller cities were able to gain tourists who stop on impulse at a motel which appeals to them by appearance and signs.

All this will shortly be changed as all communities are bypassed, but the advantage might still be with a Holiday Inn located close to the interchange at Tucumcari, compared with established facilities further from the interchanges in Albuquerque and more difficult of exit and re-entry. In any event, this illustrates the necessity for an "after" study of *all* communities involved on a major traffic artery such as I 40 rather than any community in isolation. That Albuquerque has not been able to hold its own in tourist–related employment during a period when through traffic was increasing by at least five percent per year is an intriguing finding.

Table 3

Seasonal Indexes at Various Highway Recorder Stations

1969 and [illegible]

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Out-of-State Passenger Cars
I 40 E of Clines Corners	64.8	61.6	66.0	90.1	91.4	149.3	155.8	158.5	106.4	100.1	80.6	85.6	60.4%
	58.9	57.3	67.1	83.6	94.5	150.9	156.8	153.7	106.3	95.3	75.9	94.4	47.5%
I 25 S of Raton	72.2	75.2	77.4	94.6	98.9	137.2	140.2	138.6	102.0	90.3	83.4	90.0	41.8%
	83.3	79.0	91.8	100.8	104.8	132.9	124.8	125.5	106.1	93.7	89.4	93.7	38.2%
US 64/87 E of Raton	52.8	49.7	49.[illegible]	65.9	83.2	152.7	204.0	216.3	101.8	85.5	65.5	73.0	59.6%
	47.8	52.9	60.0	73.2	91.3	139.9	195.8	208.0	134.7	94.6	68.2	94.5	54.3%
I 25 N of Dona Ana	77.4	81.9	82.6	101.1	110.9	113.4	116.3	120.5	105.6	101.0	98.0	91.0	37.9%
I 10 W of Deming	100.2	99.3	99.5	87.7	85.5	116.8	115.3	117.0	86.5	89.9	90.3	114.2	54.6%
	109.7	104.0	104.0	85.9	85.0	114.2	109.9	106.1	88.7	88.9	92.0	112.7	49.9%
US 64 S of Taos	74.2	78.2	78.2	95.0	99.5	117.1	126.7	129.7	109.5	101.2	94.9	96.3	16.7%
	64.1	71.3	91.3	94.7	106.2	121.3	131.0	137.9	111.3	104.9	92.8	93.2	15.9%
US 54/70/82 N of Alamogordo	87.8	87.6	87.6	99.0	102.8	114.8	115.8	118.0	98.0	96.9	96.8	96.4	27.3%
	91.6	91.3	93.3	100.0	106.7	119.3	117.0	113.0	100.1	95.6	91.9	98.7	25.7%
US 70/380 E of Hondo	79.3	84.0	84.0	88.3	97.5	123.0	138.6	147.1	98.5	89.6	88.4	86.0	30.4%
	78.3	80.7	89.7	92.2	101.6	121.2	131.9	127.3	100.9	95.1	91.5	93.9	34.2%

Seasonal patterns of travel vary greatly across the state. (Table 3) Any success in reduction of seasonal fluctuations without reducing total travel in the year would enhance profitability of existing establishments by raising average occupancy rates, since they are frequently filled to capacity early in the evening during rush season and have to turn many away. During slack seasons they may be far less than 50 percent of capacity. This is a particular problem on I 40.

Ski resorts such as Taos and Ruidoso have made some progress in reducing their seasonal fluctuations by attracting both summer and winter visitors. Raton, on the other hand, has even heavier concentration of its out-of-state traffic during the racing season today than it had in 1960.

The advent of air conditioning has increased the summer use of I 10 through Las Cruces, Deming, and Lordsburg, while winter travel by the southern route is less likely to be interrupted by blizzards and storms. Seasonal indexes for January are 100.2 at Deming and only 64.8 at Clines Corners, for December, 114.2 at Deming, 85.4 at Clines Corners. Las Cruces and Deming, therefore, could develop and advertise both summer and winter attractions to good advantage.

A number of studies of the value and use of water for recreational purposes have been made by staff and students of the Department of Agricultural Economics. Worked through the Water Resources Institute, their reports are published as Agricultural Experiment Station bulletins. Research of this kind will undoubtedly continue and expand. Data indicate that the bulk of use of recreational areas in the state are by New Mexico residents or from adjacent Texas communities. Further development of recreational areas and camp sites could attract out-of-state travelers in greater number with proper advertising. The out-of-state influx of travelers would make the areas less attractive and less desirable for New Mexico residents and would have advantages and disadvantages for the state as a whole. The increasing use of campers, trailers, and similar mobile lodging will probably continue to reduce the percentage of travelers staying in motels. Anything that would facilitate a pleasant stay in a community by such tourists would not show up in increased employment in lodging establishments, but would increase sales of grocery stores, sporting goods outlets, laundromats, liquor stores, and amusement facilities.

Tourist-oriented businesses and their export of goods and services to out-of-state residents have much to contribute to the economic well-being of New Mexico. An increasing percentage of them will be of the "chain" variety, which means they represent capital investment that has been raised out-of-state and imported into capital-shy New Mexico. The return on such capital will flow outside the state, but employment would be provided for several thousands of New Mexicans who are relatively unskilled and who, without this type of work, would be unemployed or forced to migrate elsewhere which they are frequently unwilling or unable to do.

With wages at least equal to the Federal Minimum Wage, plus tips and meals, it provides a very helpful and welcome second income for working wives or students, and at least a subsistence wage for the primary breadwinner of the family. Increased demand for sites with ready access to the interstate highways through their associated interchanges and access roads creates capital gains for sellers and income for lessors and renters of the prime locations resulting from the highway relocation.

Since 1958, the author has worked through the Engineering Experiment Station on a contract with the New Mexico State Highway Department and the U.S. Bureau of Public Roads in an attempt to measure the impact of the interstate system on a sample of communities across the state including, Raton, Santa Fe,

Exit from I-25 at Pecos Bilbermuda Area

Gallup, Grants, Santa Rosa, Tucumcari, Las Cruces, and Anthony. In addition, roadside businesses in I-40 from Texas to Arizona, with the exception of Bernalillo County, have been studied. In each instance a "before" report has been issued covering all available pertinent data from 1950 up to the time of publication as the basis for "after" reports which will attempt to isolate changes in land use and value, employment, gasoline sales, attributable to changes in the highway variable. As the Employment Security Commission is also extremely interested in the impact of the interstate highway system on employment, a cooperative research agreement has been consummated in which the University acts as an agent of the Commission in making these studies. The "after" reports from Raton and Anthony have been published and are available to the public upon request. Reports on other communities will be published three or four years after opening of the complete bypass system, which presumably will be sufficient time for changes in land use and value, employment, tourist-related sales, etc., to be realized.

In 1966, the writer completed an unpublished research project for the Bureau of Public Roads in connection with the proposed highway beautification legislation which would have banned billboard advertising along highway right of ways. Some 855 guests were interviewed in Las Cruces and Deming to determine why they stopped at a particular motel, how they usually made their decision as to motel accommodations, their direction and distance traveled during the past 24 hours and planned distance during the next 24. Ranking of the stated reasons for stopping at the motel of choice was as follows: Chain or association—30 percent; general appearance and attractiveness—18 percent; repeat visit—17 percent; credit card—10 percent.

As the interstate system is completed, more and more stops will be arranged in advance through the reservation system of the various chains and associations. Unaffiliated motels will have "slim pickings," receiving primarily the overflow from their better known competitors, or perhaps the leavers of more price-conscious in the selection of accommodations. Well prepared brochures and publicity concerning local attractions might encourage some travelers with leeway in their schedules to stop over for a day or more. Motel managers also should note the importance of repeat visits and be sure that their services are satisfactory in every way.

Tourists from different states seem to have different travel patterns insofar as distance traveled the preceding day is concerned. For example, 44 percent of eastbound Texans have traveled less than 300 miles the preceding day and only 20 percent had gone 600 or more miles. Westbound Texans, on the other hand, had traveled long and hard. Only 28 percent had gone less than 300 miles and 41 percent were in the 600 or more category. Of all vacationists interviewed, 24 percent of the eastbound had driven 600 miles or more, while 41 percent of the westbound had covered this distance. This might indicate that tourists coming from the west find much of interest, worthy of a stop, while those from the east were interested mostly in miles to be covered.

Much more research along these lines is needed. For a minimal cost to motel owners or the Tourist Bureau, the Center for Business Services could organize a survey to determine what could and should be done to make tourist facilities in the state or in the southern region more attractive. Certainly, more recreational and camping facilities are needed, both for the local population and the vacationers. Research by the Water Resources Research Institute along these lines should be encouraged and expanded. The University should proceed as quickly as possible with a historical museum, which, if properly advertised, would attract certain types of tourists who might thereby be encouraged to spend an extra day in New Mexico.

The net results of these various actions would be that many more New Mexicans would be happily and profitably working for the tourist dollar.

—*Paul W. Zuckerman*

FIBER, FEED, AND FOOD CROPS CULTIVATED LANDS

Cultivation and irrigation of agricultural lands in New Mexico date back over 1000 years to ancient Indian civilizations. People of Cave Dwelling [illegible] and conveyed it through small canals to garden plots. Archaeologists have discovered some primitive irrigation systems in the Chaco Canyon, one developed by the Chaguaras near Una Vida and another at Kin Kletzla. The ancient irrigators of the Gila Valley approached achievement, in irrigation systems comparable to the ancient systems in the Nile, Tigris, and Euphrates river valleys.

When Juan de Oñate led his company of Spanish adventurers and settlers north along the Rio Grande in 1598, he found Pueblo Indians engaged in irrigated agriculture in the protected valleys of northcentral New Mexico. Although primarily seeking mineral wealth, Oñate was aware that the opening of his colony would be dependent upon agricultural settlement.

A cooperative relationship developed between the Spanish and Pueblo Indians. The Spanish helped provide protection from raiding Indian tribes, and the Pueblos taught the settlers irrigation methods, crop suitability, and cropping procedures. Frequently locating near the Pueblos, the Spanish often took over land and irrigation systems used by the Indians.

Following the period of major influence of the Indians and Spanish, great changes were made in the use of water and land resources. Of the nearly [illegible] acres of farmland in New Mexico in the 1930's, only [illegible] acres were classified as improved. Today over [illegible] million acres are devoted to crop land. Almost a million of these acres are irrigated. The principal crops harvested in New Mexico in 1960 were as follows:

Crop	Acreage
Grain sorghum	[illegible]
Hay	[illegible]
Wheat	[illegible]
Cotton	[illegible]
Corn	[illegible]
Commercial vegetables	[illegible]
Barley	[illegible]

Water storage, land, and capital resources from crops resulted in cash receipts of more than $[illegible] in New Mexico in 1960.

Looking ahead, the Navajo Indian Irrigation Project will have a great positive impact on the agricultural economy of the state when nearly [illegible] acres of Indian land are brought under cultivation. Agriculture enterprises developed in this project are to be managed by Indian officials. These enterprises will provide other employment opportunities for Indian people. The use of water and land resources continues to change. Water importation and upstream land water use are [illegible] three challenges for the '70's. Other questions such as the economic feasibility of agricultural industry developments, shifts in resource use due to institutional factors, quality of the environment and water development are current and will be future priority areas of inquiry.

Cotton

Pre-historic cotton. Cotton threads found in Tularosa cave in western New Mexico were dated around [illegible] B.C. and remnants of cotton cloth were common after 700 A.D. The conquistadors reported cotton growing as far north as Espanola. Pueblo Indians of Taos regularly made three-day journeys to the south to trade for cotton. Later, the Spanish tallies of Taos were said to have mowers drawn from native cotton.

The period of establishment. Despite the evidence of pre-historic culture of cotton in New Mexico, cotton did not become really well established as a modern commercial industry until about World War I, when the impetus of high prices encouraged concentrated efforts at production.

Major producing areas were the Mesilla and Pecos valleys and a source of [illegible] land production in Roosevelt County. Drainage was a limited early irrigated variety, but Experiment Station variety tests in the Twenties clearly established the superiority of the Acala variety which has since predominated.

Research on fertilizer, irrigation, spacing, crop rotations and systems of boll culture built a cultural foundation for New Mexico which was also used liberally in all the West. When a method of killing over the boll row at planting time and harvesting-off after germination was developed, stands would be secured in southern soils and cool windy spring weather.

Establishment of the U.S. Cotton Field Station and inauguration of a breeding program by the Agronomy Department fortified a limited research program.

Grower determination and research established the cotton industry, which occupied [illegible],000 acres by 1920 and stayed near this level until 1947.

The period of expansion and stabilization. Cotton swallowed the depression as the most important cash-earning crop in the state. On the farms, tractors replaced mules, and more power was available for deeper plowing, allowing land and improved irrigation systems for better water distribution.

Research refined rates, balances, and timing of fertilizer applications and better distribution and timing of water made for a more precise culture and increased yields. Thirteen cotton technology was ahead of seasons, and cotton moved west, including increased production in New Mexico.

[illegible] grain [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [

[redacted]

the rest of the year. The winter storms are predominately frontal, with cold mist cloud systems from the Pacific northwest that intersect warm moist cloud systems from the Mexico-Texas Gulf area; however, a significant number of cumulus cloud systems are generated within the experimental area.

Uniqueness of Program

The low amount of natural precipitation, surface runoff, and groundwater recharge, coupled with high evaporation, causes New Mexico to be classified as arid. The lack of an abundance of water places an economic premium upon its consumption and restricts farming primarily to areas adjacent to flowing streams. Surface soils within New Mexico are fertile and could be beneficially developed if additional water was available. Augmentation of present surface and groundwater supplies would produce water that would demand premium prices.

The surface and underground water systems are intimately connected. The geology of the Rio Grande Basin has been mapped. The underground flow has minimum loss due to evaporation and presents a much longer time for storage and utilization than the fast-moving surface flows. The underground system acts as a large rain bucket with a few small leaks. The surface runoff from a melted snowpack is primarily dependent upon air temperatures near the ground and the geology of the drainage basin. The porosity of the drainage basin enhances infiltration at low flow rates. The difficulty of precise measurements to determine the partition coefficient will require diligent research for 20 to 30 years. The potential of precipitation between surface and groundwater makes this project a unique and exciting one.

The criteria developed in this program can be extended to many other small watersheds within a large river basin on a nationwide scale, particularly in the western states.

The integrated procedures developed in this study in cooperation with Colorado State University will lead to the research plan for operational capabilities to augment streamflow by weather modification in the upper, as well as lower, Rio Grande Basin.

Operational capabilities to augment streamflow in the Rio Grande will make the delivery of international waters under the treaty with Mexico more effective and, thereby, promote international goodwill and prestige for the United States.

The target area is dome-shaped and the hydrological behavior of a dome-shaped catchment basin offers an unusual challenge for analysis.

The unit of water usage, as well as the value of water, in the Rio Grande Basin is hard to define. The formidable problem is how do we assign the value of water in this region.

Snow movement and snow melt runoff offers unique problems in determining the forecast of water supplies of the Rio Grande Basin.

Characteristics of snow-producing storms are unique as temperatures are a little warmer than experienced in the Rocky Mountain region. The forcing and channeling functions of storm movements are different and cloudy system movements consist of a mixed phenomena of layers, cell clumps, and bands.

Plans to Accomplish Objectives

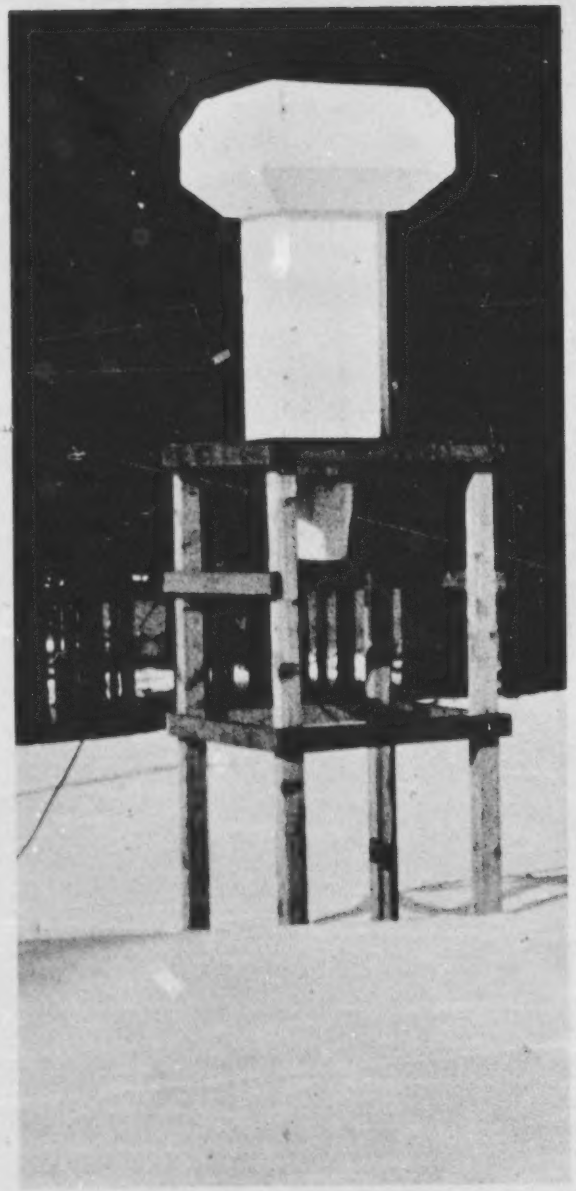
To accomplish the objectives, it is necessary to create a sound, integrated and balanced program of research and operation in cloud modification. The program must be based on creative engineering and sound scientific judgment. The program is envisioned in three phases and includes both research and field operations.

The three phases are interrelated. In the first phase, preoperational statistical design and calibration of equipment necessary to obtain meaningful data was undertaken. During the second phase, field weather modification operations, data collection, and evaluation to develop an understanding of the atmospheric processes which results in increased precipitation due to artifical nucleation will be initiated. The third phase will be directed to evaluating the cloud-seeding program by statistical and physical methods to determine the significance of precipitation differences of macro-storm systems. Evaluation of data then results in modification of field operations. Improvements in the operational procedures increase the precision of the experiment and will enhance the probability of obtaining more precipitation on the ground and runoff to the reservoirs in the system.

Basic Components of the New Mexico Program

Evaluation of the results of all weather modification experiments must be made by experts in the field if the true results are ever to be known and accepted by the scientific community. An orderly and progressive program of experiments can be designed in a manner to achieve the desired results in the shortest period of time. Various methods have been used to determine the effect of cloud seeding with varying degrees of confidence in the results. Scientific personnel, and ultimately the citizens of the United States, will benefit only if all persons and organizations properly design their seeding operations. A proper statistical design will insure significant data for the purposes of analysis, synthesis, and prediction.

The statistical model which will be used in this project will be the randomized model which was developed by the Colorado State University and is being used in their study in the upper Rio Grande Basin in Colorado. This model is being modified to suit the requirements of this project. The objective of this model is to make an analysis of weather modification efforts on a basin-wide scale instead of a specific regional scale. Data will be exchanged with Colorado State University so that the maximum benefits can be derived by both institutions. It is also intended that other statistical models will be developed.



The variability in meteorological conditions complicates investigation and modification of precipitation processes. This complexity extends to all phases of atmospheric processes which includes general circulation of air masses, cloud system forms, cloud dynamics and, form and amount of precipitation.

Criteria for selection of a "seedable unit" is now being formulated and will be based on data from upper air soundings and weather forecasts from Albuquerque. Analysis of historical storm data indicates a maximum of 50 "seedable units" can be anticipated per winter period in the experimental area. A randomized process has been utilized to determine the "seed" and "non-seed" days.

The primary objectives of the evaluation will be directed towards the determination of increase in the winter precipitation as a result of cloud-seeding operations in the Jemez Spring watershed and its magnitude. It is also necessary to ascertain any increases in the flow of the Jemez Springs River as a result of cloud seeding in the watershed and to determine if secondary effects have been initiated from the cloud-seeding operation in the area and its extent.

A scientific study of meteorological parameters has been initiated to determine the treatability of the natural storm systems which pass over the experimental area. A modified Wilcox Radar stationed in the area portrays information about the position, size, direction, and the rate of storm system movement which approaches the experimental area and the top and bottom elevations of the individual storm cells. A radiosonde tracking and receiving unit obtains vertical profile data of temperature, pressure and moisture in the atmosphere. A ballon tracking unit determines wind fields near the orographic barrier and delineates the axes of artificial nucleants. Surface observation instrumentation gives measurement of standard U.S. Weather Bureau meteorological variables. From these observations, magnitude of precipitable water is computed to determine the modification potential of storms.

The New Mexico project has tested the feasibility and economics of artifical nuclei generators into storm systems and has decided to use ground-based generators. Modified skyfire mobile generators were designed, fabricated, tested and calibrated for nuclei productivity and can be placed at proper sites in appropriate numbers as needed. Diffusion studies to confirm the proper delivery of nucleating material in required concentration are always carried out.

Precipitation on the ground will be measured and used as the criteria to evaluate the efficiency of the experimental program. The precipitation network consists of 28 recording snow-gages, 31 snow boards, 31 snow poles, 12 snow courses, and a snow pillow. The location of the instrumentation in the experimental area creates a grid pattern within a specific drainage basin and includes a spectrum of elevations in the mountainous region.

Benefits of the New Mexico Program

Ever-increasing demands on New Mexico's water resources have resulted from the growing and varied use of water in the state. The need for water to support the state's expanding progress is magnified when a closer look is taken at the vital role water has played in the development of New Mexico's agricultural, industrial, and domestic complex. If the state is to maintain its way of life and satisfy the ambitions of New Mexicans in this changing world, then it is imperative that New Mexico so control its water resources that its value can be enhanced and protected.

Runoff in the Rio Grande for the past several years has been so low that the water shortage now seems almost normal. The average flow for the Rio Grande for the ten-year period, 1945 to 1954, was about two-thirds that of the previous ten years. This condition has not materially changed during the period 1955 through 1970. If it is to be assumed that streamflow is going to be average, it can also be assumed that it will be short. Several years of below-normal precipitation, along with rapid increases in water requirements, is responsible for the current shortage.

The importance of water resources augmentation for New Mexico's survival is self-evident. Foremost among the methods of water resources augmentation is the modification of weather for increased precipitation and, therefore, runoff. In essence, a successful project of this nature in the Rio Grande Basin would be a blessing when viewed in light of previous water shortages. Further, the results obtained in this field experimental program will be applicable to similar areas in the arid Southwest.

The New Mexico experimental program, when completed, will result in development of precipitation augmentation and management procedures and technology to increase quantity of atmospheric water for benefical purposes within a basin. The finding and technological methodologies developed will be accessible to the citizens of New Mexico to pursue future operational programs.

A land grant institution has a responsibility to relate higher education to local problems and needs. Simultaneously it places its response to these needs at a university level and in a national and world-wide context. New Mexico State University has constructed an educational program which will prepare young New Mexicans for constructive participation in statewide, national, and world affairs.

Water resources and other environmental crises characterize much of the present condition of man. Although these problems are complex and there are no ready solutions; solutions must be urgently sought. New Mexico precipitation augmentation and management project is one such attempt to respond to the urgency of the challenges of New Mexico environment.

In the conception, planning and implementation of this program, special attention was directed to the educational and scholarly activities of students and faculty to insure academic excellence. The students benefited by becoming intimately related to water problems facing New Mexico, by accumulating knowledge in relation to New Mexico's natural resources, and by having the excitement of a learning experience that is related to bringing about a better New Mexico environment.

New Mexico benefits from the commitment of both students and faculty to the pressing problems of the State and to the direct and purposeful development of knowledge and actions relevant to the solution of New Mexico's problems. This research endeavor undertaken by New Mexico State University illustrates the fulfillment of the mission of a land grant institution in its traditional goals of teaching, research, and public service.

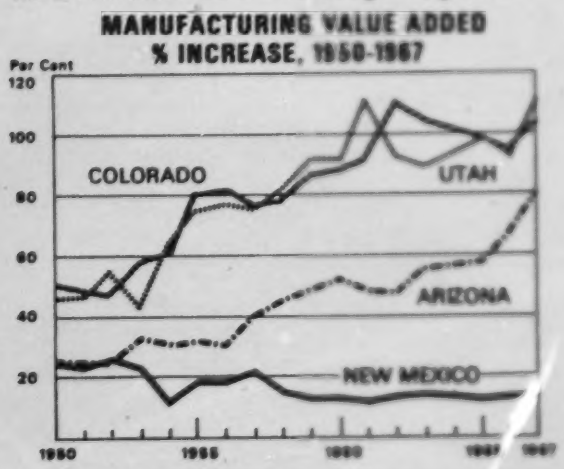
–Narenda N. Gunaji

INDUSTRIAL DEVELOPMENT IN NEW MEXICO

Industrial development in New Mexico has been comparatively slow in the past 20 years.

What at first glance might appear to be an unhealthy situation appears differently when considered from another point of view. For example, had industrial development in New Mexico paralleled that of say, Arizona or California, we probably would be experiencing similar severe environmental control problems. Therefore, factors which contributed to the slow industrial development in New Mexico were not damaging in every sense, because the delay gave the state additional time for planning to avoid the pitfalls of Arizona and California, thus permitting a healthier future growth pattern within the state.

However, the state cannot afford to sustain further delays. For example, in 1970, New Mexico's increase in total personal income was the smallest of all the 50 states - 1.1 per cent compared to 13.7 Arizona. The unemployment rate during the past 10 years has also been high compared to neighboring states. Even though New Mexico is blessed with natural advantages in mineral and agricultural assets, as well as relatively high income from government expenditures, the state could increase its income much more rapidly if it increased activity in the field of manufacturing. The following graph shows that the increase of value added from manufacturing over that of the other three incomes is far less in New Mexico than in three neighboring states:



Three of the major reasons for the currently lagging industrial development are: (1) industries classified as polluters are prevented from moving into the state, (2) many small communities and depressed areas do not readily attract out-of-state industries, and (3) some existing industries (or other organizations) are reluctant to expand operations because of the lack of pertinent information on which to base their decisions or because of poor earnings.

Industrial engineering can assist in overcoming all three of these barriers to industrial development. To eliminate the first barrier, the Industrial Engineering Department at New Mexico State University is presently conducting a study to determine the cost of eliminating pollutants from the effluent of various types, sizes, and classes of industries. Plans are now underway to expand this study to include the development of an information system which will be helpful to the Department of Development, Chambers of Commerce, and industries who wish to locate in New Mexico. State agencies, as well as industries, will find that some "polluters" can pay for the necessary pollution abatement and still make a profit. Also, the community or state may wish to share in the abatement cost as an incentive to the incoming industry.

In dealing with the second barrier, it was recognized early that finding something that people want to buy and making it economically feasible is an approach to revitalizing depressed areas. Industrial Engineering at NMSU possesses the types of faculty, students, equipment, and other resources needed to initiate this type of industrial development within the state. This approach is significant in two ways. First, such services can be provided as an integral part of a program to educate the student. Second, manufacturing plants can be started in underdeveloped areas where out-of-state industries are not likely to be attracted. In order to pursue this approach vigorously, specialized items, including financial support for students, are needed. Cooperation with other academic departments on the campus is also desirable.

One approach to eliminating the third barrier to industrial expansion is to provide appropriate technical assistance to existing industries within the state. The Industrial Engineering Department, even though only a year old, is already providing assistance to several existing industries within the state. For example, the problem of attracting an adequate number of employees to operate cotton gins during the ginning season was discovered. Further investigations into this problem led to other major related problems. A graduate student recently accepted this challenge as a major area of research. During the past summer two industrial engineering undergraduate students discovered several major innovations which can be applied to the harvesting, grading and bagging of onions. Other similar projects are in progress.

–William C. Arnwine

THE TEACHER CORPS

Designed to recruit college graduates and prepare them within a two-year period as teachers in disadvantaged schools, the Teacher Corps was created by Title V of the Higher Education Act of 1965. Teacher Corps interns are persons with an earned baccalaureate degree in areas other than education. Through the program, the intern earns the MAT degree, which requires approximately 60 semester hours at NMSU.

The Teacher Corps program has defined its major and subordinate objectives as follows:

Broaden Programs of Teacher Preparation

Recruitment and Retention--To expand the manpower pool for education of disadvantaged children by recruiting, training, and retaining qualified persons who may not otherwise have entered the education profession.

School-College Coordination--To encourage colleges and universities, schools, and state departments of education to work together in providing for effective training and utilization of teachers.

Functional Internship--To generate more relevant preparation for teachers of the disadvantaged through an internship of coordinated study and practical experience in schools and community.

Teacher Training Innovation--To encourage institutional change resulting in the development, acceptance, and implementation of effective techniques for teacher training.

Dissemination of Training Results--To create broader professional and public understanding of teacher training goals and how Teacher Corps is meeting them.

Strengthen Educational Opportunities for Children of Low-Income Families

Educational Opportunity--To stimulate learning of disadvantaged children.

Innovative Curriculum and Instruction--To advance institutional development, acceptance, and implementation of effective curriculum and instructional innovation for the disadvantaged.

Service to Disadvantaged--To provide service to schools having concentrations of children from low-income families by furnishing supplementary teaching teams to work with and assist children and faculty.

Community-School Partnership--To establish or expand links between school, home, and community through activities that heighten the corpsman's understanding and identification with the community and children he is attempting to reach, and enrich educational experiences of the children themselves.

Interns are assigned to live in their teaching communities. During this two-year assignment, the interns must devote about twenty-five hours of the work week to teaching disadvantaged children in the elementary grades, ten to twelve hours per week to community-based education, and the rest to graduate study at NMSU.

The team leader, a master teacher in charge of the team of interns, knows the interns in terms of likes, dislikes, background, training, and experiences. He is in contact with the University professors and, therefore, is aware of the instruction an intern is undertaking at any given time. The team leader, interns, cooperating teacher, and principal are in constant interaction attempting to provide the intern with the best possible learning-teaching situation. The end objective is to allow individual interns to assume increasing responsibilities as rapidly as they demonstrate competency. Thus, from classroom observation, the intern moves into one-to-one tutoring, and eventually to total class instruction.

By the end of the fourth semester, the intern will have worked at different levels (first through sixth) and in many of the subject-matter areas. Through this process, the intern is exposed to child behavior at different levels and knows at which levels specific subject matter is introduced.

The teaching experiences for the intern culminates when he is placed in a level of his choice for an extended period of time (about six weeks). He teaches a full classroom and is totally responsible for all activities for a half or full-day at a time.

NMSU received its first cycle of interns in 1966 and was funded for Cycle II in 1967 and Cycle III in 1968. In 1970, funds were provided for Cycle V, and interns involved in this cycle will begin in September of 1970.

Teacher Corps interns for Cycles I, II, and III met the same graduate admission requirements as other graduate students; however, the selection process differed for them and for Cycle V as well. A panel composed of the following personnel convenes several times during the summer for the purpose of intern selection: Head of the Department of Elementary and Secondary Education, Assistant Dean of the College or Dean of the College, Teacher Corps Director and Associate Director, Teacher Corps intern(s), Community representative(s), Public school officials, and Team leader(s).

Interns are recruited nation-wide. For example, in Cycle II, ten states were represented. The mean age for the group was 29 years, with a range of 22 to 49. The mean percentile score on the Miller Analogies Test was 61. Upon graduation from NMSU, the group's mean grade-point average was 3.4, with a range of 3.0 to 3.7.

The population for all previous cycles was about 50

percent male and 50 percent female, and these students hold a wide variety of undergraduate majors: history, oriental language, religious study, psychology, home economics, French, art, zoology, math, animal husbandry, etc.

Cycle III interns represented citizens of the fifty states in the nation. The mean age for this group was 30 and ranged from 23 to 47. On the Miller Analogies Test, the group's mean percentile score was 52.7. Comparing their graduate grade-point average, excluding work completed during the summer of 1970, revealed a 3.5 mean ranging from 3.0 to 3.8. Of the 25 interns graduating in this group, only six fell below the 50th percentile on the National Teacher Examinations. Seven scored above the 75th percentile and three below the 25th.

Cycle V (1970-71) will function with 40 interns from across the country, however, a larger proportion will be recruited from the Southwest because of the program's effort to respond to needs and requests of the local school districts.

The program for the 5th cycle is different from prior Teacher Corps programs at SMSU. Some of the major changes are as follows:

The Graduate School has relaxed its entrance requirements for 10 percent of total Teacher Corps enrollment. The following criteria will apply for this 10 percent who will fall below the usual grade-point average and test score cutoffs:

Low socioeconomic background, high environmental tensions, success in employment, and expressed aspirations.

Courses as separate entities will not be offered in the major curricular areas of elementary education. In their place, three elementary curriculum blocks will be offered: (1) Selecting and Guiding Curriculum - Fine Arts; (2) Selecting and Guiding Curriculum - Math/Science; and (3) Selecting and Guiding Curriculum - Language Arts.

This structure allows for a modular arrangement during the typical semester. Students will be clustered in efforts to bring theory and practice closer together. Under this plan, a professor will teach one cluster of students (12 to 15) basic fundamentals of his subject-matter block during the first six weeks of Semester II and then will return to the next cluster during the second six weeks of the same semester, etc. (Semester I is devoted to on-campus classes.) The other two professors will do likewise. In this manner, all students will receive instruction concurrent with their actual practice throughout the entire program. This plan calls for levels of instruction; therefore, it will be possible to experiment with competency-based education.

Team teaching will be implemented through this model at the University and public-school levels. Instruction will not be confined to the University classroom. Professors will conduct on-site instruction, demonstrations, and seminars. This practice will serve a twofold purpose: the professor will demonstrate "effective" teaching for interns and regular teachers, and regular teachers will have opportunities for in-service training through participation in the demonstrations and seminars.

The Teacher Corps curriculum, in addition to the three elementary subject-matter blocks and the basic RSET core of 9 hours, will include the following courses: Soc. 601, Southwest Spanish Language and Culture; Speech 470, English as a Second Language; E.P. 535, Psychology of the Disadvantaged; Soc. 660, Social Studies for the Elementary Teacher; Educ. 495, Production and Utilization of Audio-Visual Materials; and Educ. 499 A, B, C, Internship and Seminar in Teaching (three consecutive semesters).

—Eugene Trujillo

[illegible]

[illegible] New Mexico State University has a long record of teaching, research, and service focusing on the cultural and ethnic uniqueness of New Mexico. The Department of Educational Psychology has especially demonstrated the need for counselors equipped to serve the guidance needs of youth representing various socioeconomic, ethnic, and cultural groups.

The Department has long recognized that New Mexico, a multi-cultured and rural state, warranted a counselor-training program that would meet its peculiar needs.

A critical problem facing guidance in New Mexico was the difficulty in obtaining and keeping qualified guidance personnel in small rural systems. In 1966 the proceedings of the Western States Small Schools Conference indicated that New Mexico alone had 247 small rural schools which met its small school designation of 300 or fewer students in the upper four grades. Forty-one of these 247 schools were high schools, and only nine of them provided the services of a full-time counselor. Guidance services in the elementary level were practically nonexistent.

The rural school factor existed further complicated by the multi-ethnic nature of the state. Youth stemming from Spanish-American, Indian, and Negro groups represented a substantial neglected segment of the rural educational effort. Regional research indicated that in rural-community-oriented New Mexico counties, 71.2 percent of Spanish-American youth of the 14-17 age group were neither in school nor working. Fifty percent of these youth gave lack of clothing, supplies, etc., and personal apathy as reasons for non-attendance. In another adjacent community, 70 percent of the Indian children and 60 percent of the Spanish-American children were entering school unready, in contrast with 40 percent of the "Anglo" children.

New Mexico was found to have one of the highest school dropout rates in the country. In 1962, New Mexico was included in the five states with the highest dropout rates, with a rate of 41 percent compared with the national rate of 30.2 percent.

These were the major factors and conditions which suggested the need for qualified guidance personnel prepared not only to serve the unique needs of New Mexico's minority youth, but also knowledgeable of the needs of rural, disadvantaged, and normal youth in a multi-cultured setting. The [illegible] Department of Educational Psychology, over the past decade, has conducted a number of federally and state-funded counseling and guidance institutes to train guidance counselors to work with school youth in urban and rural schools, as well as in schools enrolling large numbers of minority group and disadvantaged youth. During the 1961, 1962, and 1963 summer sessions, the Department received Title I funds for National Defense Education Act to conduct counselor-training institutes which would prepare counselors to work with junior and senior high school students. The majority of trainees selected were from New Mexico. The vast majority of these counselors are still functioning as guidance personnel in New Mexico.

A continuous counselor preparation institute operating the summers of 1967, 1968, and 1969 was also conducted as a result of grants obtained from the National Defense Education Act and the Education Professions Development Act. Thirty counselors were prepared for service at the elementary and secondary levels in the small rural schools of the Southwest. The challenge of providing meaningful guidance services for the region's ethnic minority children was emphasized. As a result of the preparation program, the Department was confronted with taking personal leadership in training counselors who would function in guidance specialist from grades one through twelve in small rural schools in a multi-cultured setting. The personal belief grew in that time that there is greater opportunity for youth in the elementary or secondary levels, but not at both.

Two summer training programs funded by the New Mexico Department of Indian Education were held in 1970 and 1971. The purpose of these workshops was to encourage school counselors to work within the context of the American-Indian culture. Twenty counselors of Indian students in New Mexico participated in these programs.

Federally-funded training institutes have contributed a great deal to the training of guidance personnel at New Mexico State University. But the regular counselor-training program (state-funded) has prepared guidance counselors to function in a multi-cultured environment. Many of the unique challenges across the various socio-economic, cultural, and ethnic groups peculiar to New Mexico and the Southwest, and their implications for prospective and practicing counselors, have research has been conducted by faculty and students in an effort to meet the personality and intellectual needs of youth in the different socio-economic and ethnic groups and their implications for the education and guidance of these children.

The Department of Educational Psychology is engaged in active research and service in guidance programs for small schools and other projects in elementary

health science, and related professional careers. The principal energies of the faculty, together with use of the facilities and other resources of the department, were of necessity dedicated to this very important task. Upon graduation these students have been eagerly received in the public schools and social agencies of New Mexico and elsewhere, and the response of those who employ them attests to the quality of educational preparation they have received and to the wisdom of the people of New Mexico who have made these opportunities possible. These young professionals represent a resource to the state and nation that no dollar estimate can do justice to. They have learned of many of the programs and services essential for the good life not only from the textbook and the classroom, but also from actual participation in such programs at NMSU. They possess the dream as well as many of the skills of leadership needed to help community leaders elsewhere create and develop these essentials in the programs which will employ them upon graduation.

Service

The land-grant university was created on the premise that it would serve the state and the union in many ways in addition to those provided by the traditional university. The Department of Physical Education at New Mexico State University likewise has the potential to serve New Mexico in many unique and productive ways.

Workshops and Seminars on Critical Health Problems. In recognition of the serious need in New Mexico for professional leadership in health education, New Mexico State University employed a full-time specialist in public health and health education in the fall of 1966. Since then, an undergraduate curriculum has been developed to prepare the new leadership that is needed in New Mexico. New Mexico State University has met its responsibility for leadership with the health agencies of the state and region; and, valuable in-service functions of the land-grant state university have been performed. Special courses have been conducted for teachers, counselors, school administrators, school nurses, police officers, and others who need facts from the health sciences to help them in their work. Short courses on drug abuse, smoking, alcohol and alcoholism, sex education and family living, disease prevention and control, dental health, and health problems of the disadvantaged have been conducted. Each of these courses has been characterized by the professional competence of the resource people who have participated in them, by the quality and current authenticity of the resource materials which have been introduced and distributed to the participants, and, by the pertinence and usefulness of the topic. State, federal, and voluntary health agencies have provided excellent resource people and materials for each course to assure students of the most current information available on the topic.

While past offerings have been conducted at the main campus in Las Cruces, plans are underway to expand these services to make them available elsewhere in the state where they are needed and when request for them is received. In addition to the topics listed above other offerings are available in mental health, consumer health, nutrition, diet, and weight control, and environmental health.

Significant improvement in the instructional programs of the public and parochial schools has been identified as a direct result of the large number of school personnel who have participated in this in-service program. School children receive immediate benefits as the result of increased teacher competence, and the ultimate service to this state as a result of this effort has almost unlimited significance.

Consultant Assistance in Health Education. There is expressed need in public school education for expert assistance in the solution of health education problems and the design of programs in this important curricular area. At present, the capacity for assistance from New Mexico State University is limited to the time and ability of one specialist in health science. This limitation has curtailed but not eliminated the provision of such help when it was requested in the past. With the employment of a second professional in the near future school and governmental officials in New Mexico can expect the help they need and they are invited to make known their needs for such assistance.

Coronary Heart Disease Prevention Program. With the aid of a grant from the New Mexico Regional Health Office a preliminary study has been concluded to determine the feasibility of a pilot program for the prevention of coronary heart disease. While the pilot program will originate in Dona Ana County on the campus of New Mexico State University, with a medical advisor selected by the Dona Ana Medical Society, the plan envisions satellite programs located in the communities of the state wherever a need is recognized and the necessary personnel exist. This will be a program of carefully selected and graded exercise for adults from the community who have been identified by their personal physicians as high risk patients for coronary heart disease. The program at this stage will be preventive in nature with the objective being to alleviate and gradually eliminate the factors which are indicative of impending danger. Close-working relationships will be maintained between physical educator and physician, and normal patient-physician relationship will continue. Community leaders interested in the possibilities of such a program for their community are invited to correspond with the leadership of the department.

Consultant Assistance in Physical Education and School-Community Recreation. Considerable expertise is represented in the personnel of the Department of Physical Education and is available where needed in the state. Such assistance includes help with problems of educational program or educational facility planning.

Research

At present, the research efforts of the department are concentrated on problem solving with respect to teaching and learning in physical education, perceptual

motor learning, identification of problems in health education in New Mexico, and facility design for physical education and school-community recreation. The departmental administration believes that concentration on basic problems in these areas will provide the greatest service to the people of New Mexico. For this reason it is expected that the research responsibilities of the department will for some time in the future be confined to these practical needs.

–James B. Delamater

A university professor using a seventh grade arithmetic book as a text for a university course. Sound absurd? Not really, once you understand the Department of Mathematical Sciences at New Mexico State University and the interest that department has in mathematics education in New Mexico. More about this seventh grade book later.

The interest in mathematics education at all levels is nothing new at New Mexico State University, but the activities of the past few years fall into three general categories: teacher training, both pre-service and in-service; direct classroom contact with students in the elcmentary and secondary schools; and professional activity through the New Mexico Council of Teachers of Mathematics and other organizations.

Under the category of in-service training of teachers, there is a very unusual program in the department. Beginning in the fall of 1967 and each year thereafter, an outstanding high school mathematics teacher from New Mexico has been given a one-year visiting appointment at New Mexico State University. The benefits of this program are many. The teacher has an opportunity to be in close contact with people who are actively engaged in mathematics research and who keep current with new trends in the field. He is expected to enroll in a course each semester and is encouraged to become involved in the mathematical activities within the department. He has a further opportunity to become familiar with our curriculum and hence will be in a much better position to advise and teach his college-bound students.

The advantages of this program are not all for the teacher, however. His duties usually involve working with prospective teachers. Although some faculty members in the Department have taught in secondary schools, it has been our experience that prospective teachers, both elementary and secondary, profit a great deal from the years of experience of the visiting high school teacher. The program has been an unqualified success and plans are to continue it.

The College of Education at NMSU requires that all students majoring in elementary education take 9 to 12 hours of mathematics, making New Mexico State University one of the few in the United States with such high mathematics requirements. The students majoring in secondary education with mathematics as a major teaching field have a strongly content-oriented program, taking courses that will be particularly useful to them in their teaching career.

In the summer of 1970, a program designed to produce well-trained junior high school mathematics teachers was begun in cooperation with the Las Cruces Public Schools. The plan was to alleviate the shortage of mathematics teachers at the junior high school level by offering experienced and interested teachers from other disciplines the opportunity to become certified as mathematics teachers. The program began with 12 interested and capable participants, and it will continue through the summer of 1972, with evening classes during the academic year and full-time work during the summer.

One of the texts used during the first summer was the seventh grade book referred to earlier. Of course, the content of the courses that summer went far beyond seventh grade arithmetic, yet the use of the book brought relevancy to discussions about the type of problems that teachers may have teaching at this level. About halfway through the summer, the class graduated to an eighth grade arithmetic book. Those who successfully finish this program should be top-notch junior high school mathematics teachers.

In-service training in mathematics is a continuing part of our program. Beginning in 1961, a two-week workshop in topics in mathematics for teachers is offered each summer. This past summer, the workshop was not offered since the same type of course is offered this fall in the evening.

The new University interim session allows great expansion in the in-service operation in New Mexico. During this period, some of the mathematical sciences faculty will conduct two-week workshops at various centers throughout the state. The content of these workshops will be based upon participant interest, and participants will receive college credit. By bringing these workshops to the teachers, the department expects the experience to be highly relevant.

This is not a one-sided program of value only to the participants. It allows the mathematics faculty to meet a good many junior high and high school teachers of New Mexico, to learn their problems, abilities, and weaknesses, and to enhance our image as a state university concerned about other educators in the state.

These same rewards and others are also realized in direct classroom contacts with elementary and secondary school students. The contacts allow the faculty to generate interest in and an appreciation for mathematics and to become acquainted with the young students of the state. Direct classroom contacts are vast and growing, especially on the high school level. This is largely due to the High School Visitation Program, which was initiated in February, 1970.

Under this program, members of the New Mexico State University Department of Mathematical Sciences visit high schools. A typical visit involves becoming acquainted with some of the school's educators and

speaking before several regular mathematics classes. In such a class, about 40 minutes are devoted to discussion of some especially interesting topics in mathematics (this part of the program invariably receives enthusiastic response). An attempt is made to reserve 5 or 10 minutes for a discussion of college plans, the various programs of study at New Mexico State University, the mathematics program, etc.

During the 1970 spring semester, approximately 25 high schools and 80 mathematics classes were visited. The plans for 1970-71 school year include at least one visit to every high school in New Mexico.

The students at Mayfield High School in Las Cruces were offered a rather unusual mathematical course by the department in the 1969-70 academic school year. Professor Robert J. Wisner taught a course in Number Theory in the fall semester and a course in Probability Theory in the spring at Mayfield. Even though these courses carried no credit and met at 7:30 a.m., their success is evidenced by a continued high attendance of about 35 students. Professor Wisner received no remuneration for these courses. He is offering these courses at Mayfield again this academic year.

The Department of Mathematical Sciences has a long and distinguished record of active participation in various professional mathematics education organizations. Already in the Fifties, Professor Ralph Crouch, as a member of the mathematics advisory committee to the State Department of Education, had considerable influence in designing the mathematics curriculum in New Mexico's elementary and secondary schools. Since then, there have been virtually no gatherings of New Mexico mathematics teachers lacking representation by the NMSU department.

The only notable change in such professional mathematics education efforts in the recent several years is one of increased participation, especially in this last year. One mathematics professor continues as a consultant for the Committee on the Undergraduate Program in Mathematics, a national program funded by the National Science Foundation. The joint meeting of the New Mexico Education Association and the New Mexico Council of Teachers of Mathematics in Albuquerque was attended by four of the NMSU faculty, with one of them presenting an invited talk. This spring, the Albuquerque schools hosted a meeting of the National Council of Teachers of Mathematics and again six of the NMSU faculty participated in that meeting with three of them presenting invited papers.

Outside the state, but within the region, the mathematics faculty has attended professional mathematics education meetings in El Paso, Boulder, and San Antonio. Fifteen of the faculty participated in the El Paso meeting of the Mathematical Association of America, and seven of them presented papers at that meeting.

The Department of Mathematical Sciences has made a genuine commitment to serve mathematics education in this state and region.

–Eldon C. Boes and Edward D. Gaughan

POLVO DE TIZA EN MI NARIZ
CHALK DUST IN MY NOSTRILS

New Mexico's schools were characterized by rapid change during the 1960's. Much of this shift from the familiar was stimulated by diverse Federal funding programs. Such legislation encouraged teachers and administrators to attempt experimental programs. Initial experimentation was beset by inadequate curricula and a parallel shortage of instructional and principalship talent.

Our needs were pronounced. New Mexico claimed 270,000 of Spanish-surnamed extraction according to the 1960 Census, with approximately 101,000 of these enrolled in the schools at any one time. The 1970 Census percentage figures will remain parallel to those of 1960 with 29 percent of the population possessing Spanish surnames.

Some 40 years of educational research within our state reveals a consistent three-pronged finding. Our secondary school dropout rate is numbered among the highest in the nation, school achievement of the "Chicano" is somewhat less than that of his "Anglo" counterpart, and an absence of vocational and technical curricula has left the student unequipped in a highly competitive job market.

Our elementary, secondary, and higher institutions have not always been able to relieve culturally inflicted impairments. It has been recently estimated that at least 30 percent of America's pupils are denied "main-stream" entry as a direct result of poor educational achievement.

Many educational practices carry a cultural bias. Familiar indictments flow from a middle-class bound value: intelligence and achievement testing is not culturally fair. Textbooks do not include minority group identification; and teachers and administrators lack comparative ethnic, cultural, class and linguistic insights. Lack of these cultural insights typically results in irrelevant curricular experiences for the disadvantaged minority member pupil.

In 1962, the Department of Educational Administration began to develop a series of strategies relating to New Mexico's school leadership. This planning was centered around the lack of three ingredients essential in meeting the needs of minority group students: Basic studies on administrative tasks and pupil learning styles relating to the Spanish-speaking pupil were practically nonexistent; a central depository where current and relevant school research might be tapped is lacking; and model administrator-preparation programs based upon a bilingual thrust were not to be found.

Basic studies concerning community characteristics, school demands, and specific pupil needs were costly and required sophisticated research design and theoretical statistical talent. University funding potentials sufficient to defray such costs were unavailable. However, professors within the Department were successful in obtaining 12 federal doctoral traineeships in 1966. Under these Educational Research Training Program fellowships, doctoral trainees joined forces with interested faculty in securing much of needed missing information. At present, a number of the departmental trainee doctoral graduates have accepted career research specialty assignments in the areas of Spanish-speaking and American Indian education.

A central research information depository became a reality with the passage of the Elementary and Secondary Education Act of 1965. The College of Education was awarded one of 19 contracts to create and staff an Educational Resources Information Center in 1966. The University's installation, the Educational Resources Information Center/Clearinghouse on Rural Education and Small Schools is known by the acronym ERIC/CRESS, the central mission of which is to locate, isolate and abstract in usable form all high-quality research covering rural, Mexican-American, Indian, and migrant education and small schools. Documents are placed upon a microphotographic negative known as a microfiche. These are entered according to a national labeling system and are made available to schools, universities, research installations, and state departments of education at low cost. The collective information now

developed by the 19 ERIC's is currently available on campus.

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Federal funding was obtained for an experimental group of 15 elementary principalship trainees and their dependents during 1969-70. Eleven of the 15 trainees and their dependents were Spanish-surnamed, with the remaining four experienced in Indian education. Unique program design reached into diverse departments of the University for example, Sociology-Anthropology was oriented toward cultures and community structure of the Southwest. Speech offered work in the teaching of English as a second language. Elementary and Secondary Education instructed in curriculum and instructional facets. Educational Psychology contributed learning styles of the disadvantaged, and Educational Administration dealt with school governance and supervision dimensions.

Since administrative preparation programs have been weak in community orientation, coursework in this program covered the location and role of community influentials in changing school policy. The principalship was viewed as an officer responsible for reducing change causing workable curricula. Care was taken to ensure an orientation with community public agencies reaching the family via a rotating internship within the Department of Health and Social Services, Community Action Programs, Home Education Livelihood Program, Mescalero Tribal Council, and kindred groups. This was followed by a semester-long administrative internship wherein the novice understudied a successful elementary school principal. Intermediate schools typically enrolled student bodies of at least 51 percent Spanish-surnamed or American-Indian pupils. Thirteen of the trainees obtained administrative placement after receiving graduate degrees with the remaining two pursuing further graduate work. A similar program is funded for the 1970-1971 school year.

The 1960's can be described as the decade of the social report covering a wide variety of the social and economic problems of diverse minority groups. Many shortcomings and remedies for public education were common to the reports. New Mexico State University's Department of Educational Administration was able to develop a long-range strategy concerning the preparation of elementary school principals for the Spanish-speaking and Indian neighborhood school. Preparation was based upon information supplied by local researchers and external sources. ERIC CRESS functioned as a project informational base supplying necessary research data as required by the professors and trainees. A major training objective was to develop in future elementary principals cultural and linguistic insights to prepare them administratively for making valid curricular decisions for minority children. Traditionally-prepared administrators typically were denied such insight. Thirteen of the 15 trainees have been placed in administrative positions appropriate to their unique pattern of preparation.

Darrell S. Stiles and
Frances D. Edington

FINE ARTS AT NEW MEXICO STATE UNIVERSITY

The academic year at New Mexico State University offers what might be described as a constant cultural festival presented by the many faceted department of Fine Arts. Fine arts at NMSU not only makes an impact on every student at the university but through its departmental functions and faculty, reaches out to large segments of the state's multi-cultured population.

During their years on the university campus, all students have the opportunity to see and hear dramatic productions--comic, tragic, and musical; art exhibitions, traditional and contemporary; concerts of ensembles and solo performance in traditional or contemporary style, and the marching and pep bands at sport events and the student stage band at university dances. These cultural programs, performed by students, faculty, and internationally-known visiting artists, are provided at no charge to students by the Department of Fine Arts.

All students on the campus are eligible for participation in performing and theatrical organizations or to pursue individual training in instrumental or vocal music and the graphic arts at low fees per semester.

The Department of Fine Arts is dedicated to a broad range of community services. A self-sustaining preparatory program in all the fine arts,--art, drama, and music--provides group and individual instruction to school-age youngsters at a nominal fee. This program, instituted eight years ago, supplements a child's public school education and provides a valuable training ground for exceptional university fine arts students while giving them an opportunity to augment their personal incomes.

A no-fee class in string instruments has been offered to grade school children for several years on Saturday mornings. Taught by advanced students under music faculty supervision, the class lessons in strings have accommodated as many as 40 boys and girls in the Music Building's rehearsal rooms.

Touring groups of university theatrical productions, musical performances, and art exhibitions travel the state and are presented at no cost to school children and the public. Throughout the state and on the NMSU campus, approximately 150 concerts are presented each year. The band and choir tour the state annually, with tours so arranged that each section of the state is covered at least once every three years with the admission-free concerts. Last season in Las Cruces, 6000 school children attended the admission-free, transportation-free performance of the University-Civic Symphony Orchestra in the multi-million dollar Pan-American Center. The New Mexico Arts Commission has assisted the University's Department of Fine Arts in these touring activities to less populated areas of New Mexico.

Scores of high school students from across the state are introduced to New Mexico State University through competitions in fine arts conducted annually in art, music, and drama on the Las Cruces campus. Winners in the annual High School Drama Festival, Young Artist's Music Auditions, and High School Art Exhibit are awarded scholarships to pursue their studies at New Mexico State University. The winners in music also perform solos with the University-Civic Symphony, the 65 piece orchestra composed of university staff, students, musicians from Las Cruces, and outstanding musicians from the two local high schools.

High school band members meet and mingle with "Aggie Band" members when the school musicians join in Homecoming festivities at the University. "Band Day," scheduled during Aggie Homecoming, exposes the high school musicians and their directors to professional judging of their musical and marching performances. In turn, these school bands provide exciting additions to the parade in Las Cruces and half-time festivities at the football game.

An average of 200 high school musicians are welcomed to the university campus each summer for the Fine Arts Department's 11th session of Sands Band Camp. While studying under top professional musicians from all over the country, the youngsters get a taste of college life as they live in the dormitories, eat in the dining halls, and enjoy NMSU's recreational facilities during their week's stay on campus. Visiting faculty are also billeted in university housing with the students.

More than $30,000 in scholarship funds for talented fine arts students has been raised through the coordinated efforts of students and faculty of the department. Opening night performance of the musical comedy, produced jointly by the drama and music divisions of the department and sponsored each year by the Dona Ana County Medical Society as a benefit nets the department $1200 for scholarships in music and drama. Art students and staff, for the past two years, have conducted an art auction with their own art works and gifts solicited from many well-known artists. This joint effort by the art students and faculty has netted more than $2000 each year for the purchase of vitally needed equipment in the art division. Art scholarships are realized from proceeds of the art preparatory program, with music and drama preparatory programs also augmenting the scholarship funds in the department.

In preparing fine arts students for their roles as leaders in the arts communities of the state and nation, New Mexico State University fine arts faculty provides an atmosphere of creativity productivity in which the students experience the arts as well as learn about them.

They perform the great dramas, play the great music, and create their own original works of graphic art. In music and drama, student productivity is encouraged through the actual performance of their original compositions. The fine arts programs is oriented to development of the individual student through the discipline of perfecting his competence in an art field.

Dance has recently been added to the fine arts curricula in conjunction with the Department of Physical Education in the College of Education. This new art was added to meet demands of the state's public schools for competent dance instructors. The program includes courses in dance history and appreciation, with studio work in folk, popular, modern dance and classical ballet providing a minor in dance or concentration in dance as a second teaching field. In long-range program planning, the curriculum will include exploration of dances and movements indigenous to the Spanish-American-Indian cultures of the Southwest.

Each division of the fine arts, art, music and drama offers programs for students who wish to develop professional skills for performance or studio teaching, as well as for those who wish to prepare for graduate study and teaching at any level. Undergraduate degrees include bachelor of arts, with majors in art, art education, drama education, and music; bachelor of fine arts, with majors in sculpture, painting, graphics, arts and crafts, ceramics, and art history; bachelor of music, with emphasis in applied music (performance), theory/composition, history/literature; and bachelor of music/education.

Graduate degrees in fine arts are offered through the Graduate School. These include the master of arts degree with majors in painting, sculpture, graphics, arts and crafts, art education, ceramics, and art history; master of music, with majors in applied performance, theory/composition, history/literature, and music education; and master of arts in teaching, with majors in art, drama and music. This is a fifth year program administered by the College of Education.

Facilities for the fine arts at the university include some of the most modern on the campus. The Little Theater and Music Building, completed seven years ago and located in the heart of the campus, serve as the focal point of university cultural life. The Little Theater houses a large open-face stage 100 feet wide by 37 feet deep and an auditorium seating 420 persons. Scenery can be projected from a unique projection system onto a permanent cyclorama at the rear of the stage. Lighting and sound facilities, controlled from a booth overlooking stage and auditorium, are the most modern available. An area in front of the stage provides space for an orchestra during musical productions. The drama division shares stage and auditorium of the Little Theater with the music division for concert performances.

The Music Building, adjacent to the Little Theater, is connected by covered walkways and a patio. Murals depicting the history of music in America encircle the top sides of the circular building. These unusual decorations were designed and executed by the art division in durable paints developed with the aid of the University's Department of Chemistry. With scientifically controlled acoustics, the building houses numerous private practice rooms available to students, faculty studios, classrooms, seminar rooms, offices, complete listening laboratory, and reproduction equipment with an extensive record and tape library. Included in the facility is a complete electronic piano laboratory where as many as 16 beginning piano students may be taught simultaneously by one instructor. This laboratory is also used in teaching music theory. The Department's music and book collection, which has become one of the finest in the Southwest, is located in Branson Library, near to the Music Building.

A building to house the art division's studios, classrooms, workrooms, faculty offices, and gallery is presently in the planning stage. Currently these activities are housed in temporary quarters on the northwest side of the campus, with exhibition space, "The Little Gallery," in Corbett Center.

Projected programs in the Department of Fine Art at the University are headed by a plan to strengthen the humanities and fine arts, with particular emphasis on the multi-cultured environment of the region. The new course offerings and programs will be pertinent to the historical and cultural heritage of the ethnic groups of the Southwest. Already the department has accumulated through gifts of interested friends the most extensive collection of *Retablos Metalicos* in any southwestern university and also the beginnings of a fine collection of Colonial Mexico Iberian paintings.

Ultimately the university plans to house these and other archives in the proposed *Museum of the Rio Grande*. This museum, conceived as a teaching museum rather than a repository, will become the cultural center of New Mexico State University devoted to man, culture, and environment of the Rio Grande River area and its tributaries. It is planned that tapes, both audio and visual of the researched material, will be made available state and nation wide. The proposed museum will bring the Southwest community into meaningful, educational and informational contact with the culture of the Rio Grande, both historic and present.

Toward an understanding of the tri-cultural heritage of the region, the Department of Fine Arts at New Mexico State University has for several years conducted an extensive cultural exchange program in art, music and drama with the University of Chihuahua in Chihuahua City, Mexico. It is hoped that this beginning will lead to broader horizons for the students of New Mexico State University and the citizens of New Mexico.

–John M. Glowacki

NOTES ON NEW MEXICAN SPANISH

A large enrollment of native speakers of Spanish is an advantage enjoyed by the Foreign Languages Department at New Mexico State University. These students, having spoken Spanish from childhood, are in a position to move immediately to advanced courses in composition and literature. Later, in conjunction with courses in the College of Education, many students become teachers of Spanish in the elementary and secondary schools. Some of these students are able to begin early their study of a second foreign language—French, German, or Russian—and so prepare for graduate studies in language and literature at other institutions.

The department offers a special course, "Spanish for Spanish-Speaking Students," the first Spanish course for many freshmen, which consists of an intensive review of grammar, written exercises, and readings from masterpieces of Hispanic literature. Two important aspects of the course are to provide these students with an acquaintance with the written language, since in many cases their total experience with the language has been oral, and to call to their attention some of the peculiarities of the New Mexican "dialect." Here are a few examples of some of these specific peculiarities:

While working in Albuquerque several years ago, the writer, then a graduate student of the Spanish language and literature, was asked by a Spanish-speaking fellow worker to settle an argument. The argument concerned which was correct: *troca* or *troque* as the Spanish word for "truck." The writer answered sympathetically that he didn't think that either was absolutely "correct," that in Mexico the word was *camion,* as it probably was in most parts of the Spanish-speaking world.

This linguistic phenomenon, that is, the extensive use of Anglicisms and random mixing of English with Spanish, has been the subject of much discussion and debate among Spanish teachers of the southwestern United States. One teacher, dedicated to the concept that "pure" Spanish should not be "corrupted," will shake his head in despair, scorn, or even contempt when hearing such expressions as: "Mama, yo quiero un *cuqui* (cookie);" or "Yo no estaba *aguer* (aware) de eso;" or "Oye, tu radiador esta *liquiando* (leaking)."

Or he may even become incensed upon hearing the quaint archaisms used by northern New Mexicans whose families, isolated from Mexico and Spain for centuries, still use remnants of the Spanish of Cervantes: *truje* for *traje* (I brought), *vide* for *vi* (I saw), *ansina* for *asi* (thus), etc. On the other hand, another teacher will argue, as does Sergio D. Elizondo of the California State College of San Bernardino, that the Spanish spoken by the very large population of the Southwest is an adequate and acceptable medium of oral communication and that it is "good" Spanish appropriate to the time, place, and circumstances of the speaker.

Whichever argument one may defend, a universal characteristic of all language is its tendency to change. The eminent philologist Dr. Mario Pei says, "As the medium of communication of human beings, language is by nature not static but dynamic, and at no time does a given tongue, however firmly rooted, standardized and fixed as it may seem, represent more than a temporary stabilization and is constantly subject to transformation."

During the Colonial period, the spoken Spanish of America was undergoing rapid change, as was the English of America. But during the latter part of the nineteenth century, with the vastly improved means of communication, the diversification process was slowed substantially, and there has been a tendency toward standardization between the Spanish of America and that of Spain.

The Spanish language which is spoken in the Latin American republics has been influenced somewhat by various ethnic groups. In Argentina the Italian language has been a considerable influence, and the Indian languages, Quechua, Amayra, and Guarani, have enriched the Spanish language in the areas where they are spoken. At the same time, Spanish vocabulary is used extensively in these indigenous languages. As a result of these differences, the Spanish spoken in Latin America is very different from that spoken in Spain. While there are differences in pronunciation and in some words, generally nouns, these differences are no greater than those which exist between the English of England and that of the United States, or between the English spoken by a native of Alabama and one from New England.

Despite much opposition to the conservative academics and their attempts to control language, the Royal Spanish Academy of Madrid still enjoys considerable prestige among the countries of Latin America, as do speakers who pattern their speech according to its example. Consequently, the schoolboy in Mexico is encouraged by his parents and teachers to speak *correctamente,* and the traditional self-imposed task of the Spanish teacher of the southwestern United States is that of making his Spanish-speaking students aware of the many Anglicisms and archaic expressions which permeate their language.

Unfortunately, it would seem that teachers at times discredit New Mexican Spanish, but hopefully their basic purpose is that their Spanish-speaking students might be able to converse with the millions of Spanish speakers in other parts of the Hispanic world without being embarrassed by their lack of vocabulary and unwitting use of foreignisms not intelligible to the vast majority of

Spanish speakers.

Both English and Spanish have been mutually enriched by the interchange of the English speaking and Spanish speaking people of the southwestern United States. The English-speaking cowboys and pioneers of the late nineteenth century adopted innumerable words and expressions from the Spanish, and this vocabulary was diffused throughout the west. As far north as Great Falls, Montana, and as late as 1920, the renowned cowboy painter, Charles M. Russell, produced a painting which depicted a cowboy who, having roped a steer with his saddle strap too loose, was being unseated from his horse. Russell entitled his picture "A Tight Dally and A Loose Latigo." Both nouns in the title are derived from the Spanish, and perhaps only a cowboy familiar with the terms would understand them fully.

After making a catch with his rope, the cowboy takes a dally or half-hitch around his saddle horn and is able to tighten up on his rope or give it some slack as needed. The word comes from Spanish *media vuelta*, which means to take a turn or hitch. This was corrupted by the American cowboy to "dally welter" or simply "dally." *Latigo* means primarily a whip, but in Spain it is still used, as in the painting, to name the strap with which one tightens the saddle girth or cinch; the latter, incidentally, is also from Spanish *cincha*. In eastern Oregon, one still hears the word *canela* (cinnamon) in reference to the color of a reddish-yellow horse. Thus, cowboy vocabulary is rich in Spanish heritage: lariat from *la reata;* lasso from *lazo;* chaps from *chaparreras;* corral from *corral* and *acorralar*, to mention only a few.

But the influence of Spanish on English is not limited to the speech of the cowboy. In everyday conversation, English-speaking Southwesterners of all levels of society may be heard to use: *adobe*, mud brick; *arroyo*, dry creek or deep gully; *bronco*, wild horse; *burro*, donkey; *conquistador*, Spanish explorer or conqueror; *fiesta*, celebration or holiday; *mesa*, table land; *padre*, priest; *pueblo*, Indian village, etc. All these words are in English dictionaries and appear to have gained complete acceptance by the English-speaking American public.

The influence of English on the Spanish language has been referred to earlier, and obviously such influence is most pronounced when both languages are in constant contact one with another. A careful examination of most Spanish dictionaries would indicate that the lexicographers of Spanish-speaking countries are much more reluctant to admit Anglicisms to their word lists.

The general feeling is one of conservatism. Juan B. Selva, an Argentine philologist, expresses the views of most academicians: "I do not believe that there is any appreciable indication that our speech is in danger of dismemberment, but if there were such danger, as some have contended, all who speak Castilian would be obliged to arrest, by all means possible, such a tendency, since it could result only in difficulties, such as those which occur in countries such as Belgium and Switzerland, which have several official languages." Nevertheless, the following are examples of neologisms found in some recent Spanish dictionaries: *flirt, flirtear* from flirt, to flirt; *eslogan* from slogan; *trole, trolebus* from trolley, trolleybus; *beisbol* from baseball; *crol* from crawl (swimming); etc.

No one can deny the continual process of change in language. Such change may be rapid and violent or slow and subtle. A written form of the language is a powerful deterrent and educational institutions exert great influence for conservation in language. The bilingual student who expands his vocabulary and develops accurate pronunciation in both languages has a marvelous asset. The Spanish language which is interlaced endlessly with English words and phrases might be called an acceptable dialect, but it is only a spoken dialect, which becomes more and more removed from the more universal written form as time goes by.

There is much to be said in favor of the bilingual programs in the elementary schools whereby students may be taught the three R's in their own native language, thus conserving the rich linguistic heritage which is New Mexico's, while introducing to such students the vast literature and culture of the entire Hispanic world. Unfortunately, such programs are very limited, and many Spanish-speaking students arrive at universities with their language patterns firmly fixed and completely unaware that their spoken Spanish is extremely limited in vocabulary and often far removed from the main stream of universal speech. The student who recognizes his limitations and strives for improvement is fortunate indeed, and his services are in demand in many phases of industry and public life.

One of the basic aims of the Spanish language faculty at New Mexico State University is to provide every opportunity for the Spanish-speaking student to develop his inherent talent so that it may be a more valuable asset to him throughout his life. The Foreign Language Department at NMSU has been the distribution center for publications of the Southwest Council for Bilingual Education since its inception seven years ago. The department chairman, Dr. C. H. Stubing, is a charter member and vice chairman of the board of directors of that council, and under his supervision, its published reports are distributed to correspondents throughout the United States, Europe, and South America.

Note: For a detailed study of the Spanish of New Mexico, see: *Estudios sobre el español de Nuevo Mejico* by Aurelio M. Espinosa. Buenos Aires: Imprenta de la Universidad de Buenos Aires, 1930.

—*Bevan Haycock*

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THE WORD

In this thing-oriented world, the importance and value of the word can hardly be overstressed. One surpassingly great collection of words—the gospel according to John—starts out by saying, "In the beginning was the Word." In the end, too, for no record, no aspiration, no hope or idea or grief or joy of man can last unless it is caught up and embodied in either words themselves or what might be called those non-verbal words which, for instance, the composer, the painter, and the sculptor employ. And the word always outlasts the non-word. As Shakespeare says, "Not marble, nor the gilded monuments of princes shall outlive this powerful rhyme."

A great and costly building in Washington exists for the purpose of housing and displaying two collections of words which, when all the rest is stripped away, are America—namely, the Declaration of Independence and the Constitution. George Santayana once said that a people ignorant of its past is doomed to re-live it. One can indeed go farther and say that a people ignorant of its words—and the literature, the history, the ideas which those words convey—is not even a people, because a great distinguishing mark between man and animal is words and the language and literature built up from them. Monkeys have no Hamlet, no Gettysburg Address, no Ode to a Nightingale. Men do, because words are the treasure and the memory of mankind.

Words are, then, supremely important. The nursery rhyme "Sticks and stones may break my bones, but names (words) will never hurt me" is just not true. Words—and especially ignorance of them—can hurt, and words—especially skill in and understanding of them—can help, immeasurably.

All of this underscores the importance of what a university department of English does. It is no accident that English usually is the one subject—the only subject—which every branch of a university requires its students to take. Even universities which have no other requirement usually ask their students to take English.

What the Department of English at New Mexico State University contributes to its students and to the people of the state and nation can, for convenience, be divided into three overlapping categories:

1. Skills in writing—*i.e.*, use of the word
2. Understanding an appreciation of literature—*i.e.*, enjoyment of the word
3. Knowledge of the language itself (its history, its development, its meaning, its changes)—*i.e.*, knowledge of the word

In use of the word, the English Department's most extensive work is in the many courses devoted to developing and increasing the student's ability to write. From the point of view of sheer numbers—of classes, students, and student credits produced, Freshman English, a course in expository writing, constitutes the single largest university teaching effort. This course aims, through selected readings and carefully supervised writing assignments, to give the student a basic competence in the use of the written word which will, in various ways, be of help to him in the rest of his university work and, indeed, in all his professional and social life to come. Other courses—in advanced composition, technical writing, and business correspondence—add to that aim.

In the other great way in which words are used—that is, creatively, in poetry, fiction, drama, etc. to express the moods, feelings, and experiences of people, and to analyze them and life itself, the English Department offers a popular and well-developed program, including beginning and progressively more advanced courses, in writing poetry, fiction, and plays.

Of especial interest in connection with the creative writing program at this university are the Creative Writing Center and the High School Creative Writing Awards program. The Center, now in its smallest beginnings and growing, consists of the combined creative writing faculty. Its aim is to guide, assist, and develop the growth of creative and scholarly writing at New Mexico State University, in the Southwest generally, and even in Latin America. It will do this by overseeing all the creative writing courses, providing guidance, criticism, and advice for all the creative writing efforts on campus and, when appropriate, off campus; establishing an Institute of Spanish-American Writing to encourage and develop native Southwestern and Latin American writings on a bilingual basis; presenting a regular schedule of visiting poets, novelists, short-story writers, playwrights, and critics both to the students and to the town people; and conducting an annual Rio Grande Valley Writers Conference. In 1970 the highlight of the Center's efforts was the visit to New Mexico State University of the renowned poet and dramatist Archibald MacLeish.

Another creative writing effort of great value to the state is the annual High School Creative Writing Awards Program. This undertaking, involving a great deal of work by dedicated teachers in the English Department, provides the single greatest amount of encouragement to high-school creative writers on a state-wide level. High-school teachers of creative writing throughout the state are asked to submit to the university the best short stories and poems written by their students. These submitted are read and evaluated here, and the best are printed in an annual publication, with appropriate awards of money and honorable mention. Many high-

school students in the state have testified to the lift which this program has given to the morale and interest of young New Mexican writers.

The second large category of the work of the English Department is the teaching of an understanding and appreciation of literature, from freshman to graduate level. The great contribution of literature is the revelations, the insights, the discoveries, the enormous living which it can give to those trained to see such things. It is no exaggeration to say that good poetry, great plays, powerful novels can tell us as much about people, their world, and the operative relationships within that world as can any supposedly "factual" study. If one wants to know himself and his world he lives in, there is no better way than the wide reading of literature.

In the study of literature the department offers the students various programs, as concentrated as the student desires, in American literature, British literature, and even world literature—all from earliest times to the present. Over fifty courses in literature make up these offerings. Of especial interest to the non-literary theme are two courses presently taught. One is Southwestern Literature and Folklore, which presents a survey from the Indian myth cycles and accounts of the Conquistadores to contemporary essayists and novelists with a Southwestern orientation. The other is Hispanic Literature in Translation, which offers readings from Spanish and Latin American writers from Cervantes to the present. These studies are capable of considerable expansion through courses in Mexican-American or Chicano literature and through regional folklore studies. Much research—a good deal of it done by students in their own localities—needs to be done among, for instance, the Indians of the state, so that their folk literature will not be lost.

There is, indeed, no end to the writing of books and to the profitable study of them.

The third, and last, large area of the work of the English Department is the promulgation of knowledge about language and words themselves, in some dozen courses devoted to this purpose. Classes in what language is, how it grows and develops, its grammar, its phonology and syntax, and its social and geographical aspects provide the student interested in linguistics with a knowledge of language as a science and as a social force. Again, of particular relevance to the foreign-born is expanding work which the department, through its linguistics staff and students, is doing in area dialect study. As the person directing this study puts it:

> Here, where three cultures intersect, the language of each has been influenced to some degree by that of each of the others. Little has been done to record and preserve the language, the oral literature, and the local culture of each. We hope by taping and other efforts to make the three cultures available to all, and so by preserving an understanding and respect for each to produce a mutual pride and unity.

Such, in brief and omitting much, is the work of the Department of English at New Mexico State University in spreading, in all its aspects, the Word.

—Robert A. Nisbet

[illegible]

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Environment, People, and Culture

Environment, People, and Culture

The Land of Enchantment -- The Dilemma of Change

Jack M. Campbell

I am delighted to have been invited to participate today on this auspicious occasion, though I must admit that it makes me uncomfortably conscious of my age. I can easily remember when university presidential inaugurals were rare. University presidents started at a mature age and retired late in life to become presidents-emeritus. Alas, those days may be gone forever. I say this not with any idea of predicting Dr. Thomas' future; I say it instead to add to my admiration for him and enhance my best wishes for a long and successful tenure here.

As I observe it, the position of university president in today's world is the most challenging, and must be the most frustrating, available. No executives, including governors and senators, have more constituents pressing sensitive pressure points. There are the students, the faculty, the deans, the department heads, the miscellaneous administrators, each with innumerable committees; the regents, the alumni, the legislature, each with committees; the governor, and all sorts of groups of that nebulous thing called "the public." I'm here to pay my respects to anyone who can accommodate to this varied constituency. Dr. Corbett managed it well, and, from what I have read of Dr. Thomas, he will meet the challenge of the future at this great institution with reasonable good humor.

I have been informed that Dr. Thomas, himself, suggested that as a part of this ceremony we discuss the environment of this Land of Enchantment and, particularly, our tri-cultural heritage. I commend him because this is what distinguishes New Mexico among our states. It is what gives New Mexico its greatness and poses some of its problems. It is what imposes upon New Mexico institutions of higher learning a challenge greater and more urgent than upon other universities in our country.

One cannot understand, or appreciate, a land or its people without an understanding of its history--its struggles, its conflicts, its triumphs, its defeats, its frustrations, its exploitation. We desperately need to examine and re-examine *our* history and heritage particularly in these times of accelerated change when value systems are shifting, some say for the better, some fear for the worse. The story we find may not always be a happy one because more than love lingers in the human heart. There is pride and fear and resentment and jealousy and, yes, even hatred. If we are to understand each other--where we are, and where we are going--we need to accept these human frailties and seek to minimize their negative impact. This is a part of the role this university can play in the future, so I turn to my own assignment in this still unfolding drama.

The story of New Mexico is a long and romantic one. It has so much history that just to sketch it would demand volumes. That history contains the seeds of the three cultures represented here today: the Indian, the Hispano, and the Anglo.

It all started about 25,000 years ago near the Sandia Mountains by the Rio Grande where men migrated from somewhere, probably the north. Even those first men to come to New Mexico were immigrants who came to

Jack M. Campbell, former governor of New Mexico, is a consultant to two cabinet-level departments in the federal government. He is a member of the National Municipal League governing council, director of the Institute for Social Research and Development at the University of New Mexico, and president of the Federation of Rocky Mountain States.

He has served as head of the Institute for State Programming for the 70's at the University of North Carolina and as a member of the American Council on Education's advisory board for its study of systems of higher education. In 1963-64 he was chairman of the Interstate Oil Compact Commission.

Mr. Campbell received his A.B. and LLB degrees from Washburn College in Topeka, Kansas. New Mexico State University honored him with an honorary doctoral degree in 1966.

exist, then to explore, then to exploit. When they arrived, this was already a land of deserts, mesas, mountains, and, above all, the sky.

The great centers of pre-pueblo living are found in Mesa Verde in Colorado and Aztec and Chaco Canyons in northern New Mexico. But drought and fear drove these pioneers into the Panajito Plateau and then into the Rio Grande Valley. Quite naturally, the sky, the water, the earth, and the corn became the sacred elements in their theology. Even before coming to the valley the forefathers of the Pueblo Indians were irrigating their crops with a complicated system made of rock reservoirs and ditches fed by a series of check dams in arroyos.

Thus came civilization to this enchanted land, and by 1000 A.D. these truly Southwestern natives had progressed from pit houses to great mud apartment houses, from nomadic clans to urban dwellers, passing down to us a history written in the ruins and artifacts preserved by the dry dust. Even today, the spirit of remote ancestors lives in the customs and beliefs of the twentieth century Indian of New Mexico. Each settlement or pueblo is a complete community with its own social and political organization, independent from other pueblos. Although of common ancestry and located near each other along the river, they speak different dialects that seem oddly related. They retain their proud independence which seems strange in this complex and interrelated society outside the pueblo.

It is not only the Pueblos that provide our early history. Many years passed before the Navajo and the Apache appeared on the scene, bringing the traditions and life-style of the plains Indians. They were not then united tribes but scattered bands recognizing more the individual than the group. I should, and shall, leave the rest about the Indians to Governor Robert Lewis of the Zuni Pueblo, who speaks from involvement and knowledge much beyond mine. Suffice it to say, now, that for 25,000 years Western civilization was not heard from in this land that is now New Mexico. But there was no statute of limitations then, nor was possession nine points of the law.

In Mexico City a contingent of Spanish soldiers and Franciscan friars were preparing to bring their version of civilization and salvation to the unsuspecting native of the North. The year was 1536. Cabeza de Vaca and three companions had just arrived in town after eight years of wandering. Shipwrecked in the Gulf of Mexico they had wandered across the continent passing a few miles south of the present site of Las Cruces before walking south to Mexico City where their tales of adventure excited the leaders of New Spain. Perhaps those Indian villages de Vaca had seen near the great river were the legendary seven Cities of Gold.

It was an irresistible political opportunity for Antonio de Mendoza, the Viceroy of New Spain, an opportunity which even I could not have resisted. He needed to politically outflank the rising Cortez. A profitable venture could enhance his prestige. He needed to rid

Approximately 1,500 people attended the symposium where guests heard talks on Southwestern cultures.

Mexico City of restless, boisterous young sons of Spain, soldiers aching for adventure. So it all started: the invasion of the North, the beginning of New Mexico's second era. For this saga, we wait to hear from Father Angelico Chavez whose family has been a part of this period and who has devoted many years of priestly and scholarly effort to it. This era lasted only 250 years, a period longer than the United States has existed as a nation, it is true, but a flash of an instant in the long history of New Mexico.

The story of the Indian-Hispano period is a great, but often grim, one. Droughts, disease, incompetent bureaucrats, and frequent Indian uprisings drove many early settlers back down the Rio Grande. But after another 250 years, including forty years of Mexican rule, things were reasonably settled in the new, New Spain.

In 1846, it happened again: the influx of the Anglos began, bringing with it resentments which still plague us. The third era had begun, and the social, economic, and political structures of the state still reverberate from it. First, the Anglos moved into the eastern area from Texas and Oklahoma, pushing the Spanish back to the Rio Grande. They brought cattle and resented sheep. Then they moved to acquire large land-holdings. The Spanish land grants proved too tempting to resist, and a long battle was joined. Recent events make it quite clear that this era is not ended. Here, we look to Dr. Ira Clark, Southwestern historian at New Mexico State University, to explain his view as a scholar, of the tremendous influence of the Anglo culture upon New Mexico.

We are now in the beginning of an overlapping era,

Special registration tables were provided by the International Programs office for guests from Mexico.

not exactly a cultural one, although some may view the age of science and technology as a culture. The space and nuclear ages can almost be said to have been born here: at Dr. Robert Goddard's liquid-propelled rocket tests near Roswell and later developments at Holloman and White Sands Missile Range, and the development of the Bomb at Los Alamos and its first detonation at Alamogordo.

This university has been profoundly affected by the impact of science and technology upon it; for example, the work of renowned astronomer, Dr. Clyde Tombaugh, has brought fame to the university and our state. Even the change of name of the university can be traced to the impact of science. Certainly, the Physical Science Laboratory attracts national attention in its research and development and in its assistance in attracting the launching and landing facilities for our country's plan for a Space-Shuttle program. This age of space and nuclear sciences, and the associated electronic industries, crosses all cultural lines, even to the establishment of electronic manufacturing facilities on Pueblo and Navajo reservations. This scientific and technological age, born here but only now maturing, adds a new dimension to the public responsibility for quality education at all levels, but particularly in institutions of higher learning such as New Mexico State University.

Enough of history for now! Our interest, and perhaps concern, now, is what all of this has meant and now means to New Mexico's environment, both physical and human. First, the physical environment, for here is where man is moulded: What sort of land can tolerate these invasions? Why did it attract men of three cultures? True, there is wealth—or the dream of it—much of it still uncovered, but, more importantly, there is beauty. It's in the sheer space, in the deserts, in the mesas, on the mountains, and, most of all, in the sky. In his book *Sky Determines* Ross Calvin wrote, "In New Mexico, history has not taken place under a roof." He speaks of, "the intoxicating splendor of the desert, the green magnificance of the forest, the mystery of the barbaric mountains, the serene openness of a sky whose eye is the desert-making sun." It is a land of contrasts, rising from the desert, to the mesa, to the mountain, to the sky; only the sunset is the same, and it is always magnificent. Despite the struggles of man against man and man against the elements, there is a serenity hovering over New Mexico seldom found anywhere in the world. This is the physical environment we enjoy and cherish. It is a God-given blessing made even more charming by the long and exciting history indelibly stamped upon it. All of us must be committed to conserving it.

And what of men in New Mexico, how do they fare? Have these three, or perhaps four cultures, meshed to perfect the quality of life in this land of enchantment? Regretfully, the answer must be a reluctant "No." Our Indian population, by and large, lacks the education and the economic base to realize the great opportunities their heritage offers them. They continue their struggle with the Anglo—no longer over land, except their sacred places—but over water rights for development and the

application of taxes to them and the land leaseholds upon it. They are engaged in a struggle to keep their way of life in an alien culture moving upon them.

Our Hispano people have largely failed to attain the quality of life, at least in the material sense, that most Anglos enjoy. The percentage of their young people attending college and acquiring professional degrees is saddeningly low. Their close family life, a proud and precious tradition, is deteriorating because young people are forced to leave to find jobs elsewhere. Their per capita income is among the lowest in the country. Some of them turn violently on the Anglo, bitter over land disputes.

Our Anglos, sons of this soil and immigrants, also find themselves with limited opportunities! They, too, are a part of these grim economic facts of life. The closing of a military base, a cutback in the national space or nuclear programs, failure to renew a government contract shake the roots of our communities, large and small. Our Anglos, more perhaps than our Indians or Hispanos, most recently came here either to bring about development of minerals and land; or to pursue employment in nuclear or defense related installations; or to provide necessary services for other immigrants.

Now, among these Anglos, another rift appears. There are those of a breed I call the "preservationists"; and there are those at the other end of the spectrum I call the "irresponsible developers." The preservationists seem not to be too concerned about job opportunities for the non-professionals and unskilled, and the irresponsible developers show little concern for the beauty of the land and the quality of life in New Mexico. I should make it clear that these are the extremes. There are many conservationists and many developers who share common basic environmental concerns, but the polarization which is occurring in our society makes it difficult for them to communicate in a rational way, much less develop an understanding of balanced growth: quality and quantity. In conservation and development, the days of the good guys in white hats and the bad guys in black hats must go, even though television lingers on.

I venture to say this is New Mexico's great dilemma, and it is the inevitable result of our land and its people, all of its people: Indian, Hispano, and Anglo. How can we use the land and its contained resources to provide economic abundance for our people and yet not destroy its magnificent beauty? This, of course, is a world-wide dilemma, but it seems to me it is particularly apparent here where we still have time to make the right decisions, take the balanced course.

To me, the balanced course requires knowledge—technological, economic, political knowledge—and understanding. Our educational system is the primary source of knowledge; therefore, it is incumbent upon universities, such as this great one, to assume the lead in seeking out and charting the course for the future. Here is where the social scientists seek the truth about the human and his responses to his environment.

But, the discouraging fact is that, by and large, the traditional organizational structures of our universities are not responding—and, I daresay cannot respond adequately—to challenges such as this. Neither, incidentally, can our governmental structures. We need some bold self-examination in our institutions of higher learning. We need to unshackle them from archaic custom. No one can accomplish this, at least properly, except those who are a part of the institution. It cannot be the students who are transients, there only fleetingly, nor the legislature which is ill-equipped for such tasks, but rather the faculty and the administrators and the regents, with the cooperation of students and the legislature.

I suggest that this inaugural ceremony at this university as we greet and honor its new president is a fitting time to recognize the great trust and hope that all people of all cultures in New Mexico place in our institutions of higher learning. Most of us feel that if the response is weak our state's future is grim indeed. But there is a concomitant responsibility on the part of our people, to have faith in and support, financially and otherwise, our universities. Granted, although public financial support of education in our state per capita is among the highest in the nation, this is simply not the test, at least the sole test. The test is in this: what do we need to lift ourselves as a people and as a state to a point where we all enjoy a high quality of life within our own individual culture, enriched by our neighborly association and participation in the fascinating culture of others.

I close, as I began, with best wishes to our new "president." Change is a normal and exciting part of our biosphere and for all of us animals who are a part of it. In these days of accelerated change, where new knowledge is being accumulated at rates impossible to absorb, it should be a real challenge to be called upon to be at the heart of it, here at this great university.

The Role of the Indian in New Mexico

Robert Lewis

The role of the Indian in New Mexico is one which leads, in an unbroken line, from the present into pre-historic times and we believe, one that will continue into the indefinite future.

Interest in the Indian, his history, culture, and his closeness to his land and nature, because he too has his religion and way of worship for the Supreme One, is being more and more evidenced today by non-Indians than ever before. However, those who are showing this interest are yet in the minority. Even in our own state it surprises us to know that only a very few of our non-Indian population have ever made it a point to visit any of the nineteen pueblos, the two Apache reservations, or the eastern Navajo, which are all a part of the New Mexico Indian population.

In a limited amount of time, it is impossible to give you anything more than what is referred to as "in a nutshell" type of presentation on the subject, but we will attempt to bring out the highlights concerning us Indians of our state. To bring the picture about ourselves into clearer focus for you and to relate to the present day status of the tribes in New Mexico, we will first have to go back a ways in history.

Long before the first Norsemen or whatever, touched the shores of what is now our United States of America, the Pueblo Indian was here as the first builder. Ruins all over our Southwest (200 on our Zuni reservation), as well as our existing pueblos of today, indicate and prove this. In all the places at which they built, there appeared multi-storied communities. Apparently there were no hostile, marauding tribes because it takes time, no one knows how long, to build such structures and live in these places. The Indian was an agriculturist and a craftsman as well as a hunter. These communities were well organized and well controlled. Although no evidence of a written language was ever in existence, the best part of these community set-ups was their form of government which was so good it is still evident today!

When the first Spanish Conquistadores arrived in 1540, they found a series of well organized towns along the Rio Grande, its tributaries and other river systems in New Mexico. The Indian had reached a very high level of sophistication and development in the fields of social and political organization, religion, weaving, art, ceramics, and architecture. As European settlements took shape in the years that followed, the newcomers borrowed architectural designs or styles, agricultural crops and farming methods, and in return they introduced livestock, wheeled vehicles, and other items belonging to Spanish culture.

The conditions of life changed greatly after the advent of the first European settlers, but the role of the Indian in the scheme of things remained as important as ever. The Indian borrowed widely from the Spanish, but steadfastly retained his identity as Indian. This has remained a characteristic of the New Mexican even down to the present day, as three distinct ethnic groups: the Indian, the Spanish-American, and the Anglo-American have joined in the use and development of the resources of New Mexico.

Robert Lewis has been executive head of the Zuni Pueblo for the past five years. During his period of governorship at Zuni, he has provided leadership in the formulation of the Zuni Plan, a blueprint for social and economic development of the pueblo. Most recently under his leadership, the Zuni Tribe has entered into a service agreement with the Bureau of Indian Affairs, under which the pueblo has assumed responsibility for the supervision of the government employees and programs at Zuni.

Last year Mr. Lewis was elected to serve as one of the delegates to the Constitutional Convention. He is also a member of the Legislative Committee of the All-Indian Pueblo Council and a member of the Commissioner's Steering Committee for Indian Awareness of the Bureau of Indian Affairs.

Mr. Lewis and his wife reside at Zuni. They have ten children.

According to the 1970 national census the population of the state is now slightly in excess of 1,000,000. The Indian makes up about 70,000 or less than ten percent of the total population, but his contributions to the social and economic life of the state are, we believe, disproportionately great in contrast with his numerical strength. The valuable contributions of the Indian grow directly and indirectly out of his determination to retain his own ethnic and cultural identity.

Ceremonial activity associated with native religions, coupled with distinctive Indian arts and crafts, are second only to the spectacular scenery that characterizes this state as attractions that bring thousands of visitors to New Mexico every year. The silverware of the Zuni and the Navajo, the pottery made in many of the pueblos, and products of Navajo looms are at their best, something more than curios--they are more accurately described as true jewelry and ceramics. Silver and turquoise necklaces, rings, earrings and bracelets, made by Indian craftsmen of New Mexico are sought after, and worn by non-Indians throughout the nation, and pottery made by such masters as Maria o Gowen and appreciated not only in our country but even was as well. Likewise, Indian painters and sculptors have found a place of distinction in the art world. The design, the theme, and the manner of execution of Indian crafts are drawn from Indian culture, but the appeal of the products is universal.

A peoples' way of life is never static. It may change slowly, but it changes. If there were such a thing as a written chronicle of events in New Mexico stretching back to the time when the first people came into the area, we would no doubt be struck by the many changes that took place in their way of life across the years as conditions changed. This was as true in pre-historic times as it has been since the coming of the Spanish and later the Anglo-Americans. For a long long time the tempo of change was slow and gradual in New Mexico, not only as it affected the Indian communities, but as it touched those of our Spanish and Anglo-American neighbors as well. In any home village of Zuni, agriculture and stock-raising were, like bread, the staff of life until very recent times. It was a peaceful existence, one in which we consumed many of the products of our own labor and sold or traded the surplus for commodities that we did not make for ourselves. Our neighbors did likewise.

The tempo of change remained slow until the 1930's and 1940's when the National Depression, the outbreak of World War II and other events of major proportions set in motion a series of rapid changes in the life of the people of New Mexico. The population increased rapidly and, in support of, industries began to spring up in the cities. New highways were built, and Americans from other parts of the country began to "discover" New Mexico in ever increasing numbers. REA carried electric power to the villages, and with its advent the Indian vied with other rural people as consumers of household appliances: radios, televisions, washing machines, refrigerators, etc. They, like their non-Indian neighbors, acquired automobiles and expanded the area of trade beyond the neighborhood store and trading post to include surrounding towns and cities. To generate the cash necessary to acquire new commodities Indian and rural people began to look for jobs.

There were, and are, two major avenues open to the rural communities of New Mexico in responding to and benefitting from the changing conditions of life in the state. One could pull other segments of the rural American population in a movement toward urban areas where industrial employment was available or they could develop the resource potential in their own home areas. Some rural people, including some of the Indians, chose the former course and moved to the towns and cities where jobs could be found. Others, especially the Indian people, began to search for a means whereby they could remain together in their own homeland and at the same time generate the income necessary to share in the prosperity and higher living standards of their fellow Americans.

Not only do Indian people often feel a strong attachment to the land upon which they have lived for so many generations, but they feel a strong attachment to the language, the religion and the cultural life of the tribe or community to which they belong. They are willing to exchange the old economy for a new one to secure the benefits other people enjoy, but they are reluctant or unwilling to do so at the cost of losing their identity as Indians. For a time my pueblo along with others faced a dilemma. How could we participate in the cultural and economic life of the state and the nation without forfeiting our own tribal values. We attacked the problem by identifying some of the prerequisites to success, a higher level of education, for example, and by taking stock of local natural and human resources that might be converted into income, both collective and individual. Other tribes and pueblos throughout the state have followed a similar course. On some reservations there are mineral and timber resources that could be developed and exploited. On some there were lakes and rivers suitable for fishing, or there was game to attract hunters. On others there were areas suitable for skiing. And on all reservations there was a labor pool that could be employed if local industries could be developed.

A quick look around at the Indian communities of New Mexico is sufficient to show the course that tribal people have taken. Oil and gas was found on the Mescalero Apache Reservation, and development of this resource generated a substantial amount of tribal income. Shortly after production commenced, the Mescaleros established a one million dollar scholarship trust fund to serve the higher education needs of their children. Other income was invested by the tribe or used to provide employment and services for the reservation people. The town of Dulce was modernized through an arrangement between the tribe and an outside firm with the result that modern office buildings, a post office, bank, grocery store, motel and restaurant were built. Dulce, the tribal capitol, has become a modern New Mexican town today, complete

Students from Ivy Dunlap read aloud a traditional Indian ceremony presented for practice. Principal Leslie Knight looks on. (Courtesy Albuquerque Journal)

The Settling of the Great American Desert

[illegible]

terminology of cowboy lore.

In New Mexico, as one generation followed another in past centuries, the higher things of learning became less and less important, there being no books or papers anyway. If an individual could read and write, he owed it to his family tradition which passed on the skill from father to son. As a result, the language of Cervantes remained stagnant, and in time deteriorated somewhat. Bits of old Spanish folklore and song survived, but, as can be expected from the circumstances, no works of literature, music, or any of the tangible arts were produced. Only in latter times were some crudely wrought pieces of household furniture produced and sacred images in the form of *bultos* and *retablos*, and again, their recognition as authentic art and their rescue from extinction is greatly due to modern discerning Anglos. As for music, what many a New Mexican believes to be native popular songs and dance tunes happen to be importations from Mexico in the last hundred years. (And here we can point out that the greater part of American popular rhythm and melody has been influenced by those of Mexico, Cuba, and other Latino countries.)

As for matters political, the colonists of New Mexico fell under the church-and-state Spanish framework. But as a lively, if ignorant, pastoral folk who had found their dukedoms far away from king and viceroy and archbishop, and with the time on their hands which their pastoral life allowed them, they reveled in this freedom. Continually they gave both the Franciscan padres and the governors sent from Mexico City a hard time. Their changing sides on any topic was kaleidoscopic. Thus was born the New Mexican's innate passion for political intrigue which sharply divides communities, and even members of the same family, around election time. And most Anglo newcomers, who perhaps never bothered to vote when living back East, have caught the fever.

Going back to ethnic matters, new additions and developments must be mentioned. In 1680, the colony was exiled after a fatal Pueblo Indian rebellion of that year. They took refuge at the southernmost Franciscan mission in the present Juarez-El Paso area, but most of them returned north in 1693 to resume their *Extremeno* pastoral life in what was now their one and only real homeland. Several soldiers from different parts of western Spain, and the many new Spanish families recruited in Mexico City and Zacatecas, were mostly of the same *Extremeno* tradition. The few who brought new skills and ideas in time succumbed to the New Mexican milieu of exclusive livestock raising. The old isolated and illiterate way of life continued with its obvious disadvantages. Yet, the people never left off believing that they were full-blooded *españoles*, as many a document reveals; some of them boasted of noble antecedents the more their history was blurred with the passage of time. For they had forgotten that among the very first settlers, a couple of men whose descendants were now leading citizens had married Tlaxcaltec women whom they had brought along as servants; one or the other captain who had arrived in later times, while passing for a Spaniard, had Mestizo blood. Nor did they know that a few of the families which came from Zacatecas had been full Mestizos, so well had these been integrated in the prepoderantly Spanish families as to appear to be Spaniards. (But, contrary to popular Anglo and Pueblo Indian erroneous belief, the Hispanos of New Mexico did not intermarry with the Pueblo Indians, and this will be explained anon.)

However, something occurred during the eighteenth century about which my New Mexican compatriots are largely unaware. A proud pastoral people, no matter how primitive in outlook and how unlettered, they felt the need for menial labor among their large herds and flocks and in their spreading haciendas. Few of their Hispano compadres, no matter how poor, cared to demean themselves that way. Spanish law and the watchful missionaries prevented the wealthier *patrones* from impounding the Pueblo Indians, and the latter could not be torn from their beloved Pueblo homes anyway. Hence, ostensibly under the guise of Christianizing and civilizing the wild Indians of the plains, they began "adopting" women and children from the diverse plains tribes. Most of these were purchased in trade-fairs from Utes and Comanches who had captured them in warfare from such other tribes as the Apaches, Pawnees, and Kiowas—or the other way around as the case may be. These assorted non-Pueblo Indian people grew up in Spanish households speaking the local Spanish language and practicing the Catholic religion according to their fashion, all bearing Christian baptismal names and the surnames of their original *patrones*. At marriage-time they received their freedom, although many of them continued in their original state of peonage for lack of other sources of employment. The rest led such a miserable life that the authorities found it necessary to found villages for them with land for breeding their own livestock.

This external Hispanization and the resulting intermixture of tribes had caused their progeny to lose tribal identities altogether. Yet they could not be classed as *españoles*. They were not Pueblo Indians, surely, and they were no longer "barbarians." So the authorities reached back to an ancient Spanish term for mixed-bloods of the same race, and called them *Genizaros*. They proved very fertile carnally, perhaps because of their tribal intermixture (not to mention some Spanish infusions by over-ardent Spanish masters), and when the nineteenth century came around the Genizaros formed a third of the population. In time some married into the poorer Hispanic families while others, drawn by Amerindian affinities, married into the Pueblos and vice versa. This is what had led Pueblo Indians and others to say that "Mexicans" or "Spanish-Americans" had married into the Pueblos. Today, you meet many a Spanish-speaking New Mexican with a good Spanish name who considers himself of Spanish descent when his bone-structure proclaims that he has little or no Spanish blood in him. Yet he is right in calling himself a Hispano or

Spanish-American as an inheritor of the peculiar Hispanic culture of New Mexico. He further illustrates another feature of the Spanish thrust in our Southwest—that anyone who adopts the current way of life is likewise adopted wholly into that tradition.

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In the meantime, since the Conquest of the Aztecs by Cortes, New Spain had developed into cities and towns architecturally, culturally, and economically the equal of any in Spain herself. Major and minor schools not only kept up with the development of the Castilian language but fostered an enviable literature among Spanish Creoles and Indians alike, not to mention the fast-growing Meztizo element. Schools in the arts and crafts engendered a new growth of Spanish music, painting, and sculpture, and at the same time a wonderful amalgam of all the arts with the native Indian ones.

These and other developments, plus the policy of European Spaniards of abrogating to themselves the best positions in church and state, early caused a rift between the European Spaniard on the one hand, and on the other the native-born Creoles together with the vastly increased number of educated Indians and Mestizos. The real unity of these native-born elements began in the middle of the seventeenth century when a couple of Creole clergymen printed a legend to the effect that the Virgin Mary had appeared to a simple Aztec Indian and imprinted her image on his humble cloak. The story also claimed that the Virgin had addressed the image to a Spanish Franciscan bishop who sincerely loved the Indians; furthermore, everyone began seeing in the dark face of the sacred portrait the features of a Mestizo maiden. This phenomenon quickly captivated all the native ethnic groups concerned: the Spanish Creole, the Indian of pure blood, the Mestizo. A national spirit grew fast apace through the eighteenth century along with the religious devotion implied, so that in the first insurrection against the Spanish rule in 1810 the tri-color of Mexico carried, not the present eagle and serpent, but the holy Image of Guadalupe.

Neither this short-lived revolt, not the final successful one of 1821, affected New Mexico very much. Her people knew nothing about them, much less had anything to do with them. Although Spain had abandoned them long ago, the New Mexicans harbored no animosities but rather guarded her with romantic memories. Yet, when the news of Mexican Independence arrived in Santa Fe, New Mexico's leaders readily accepted the fact and even staged a little celebration in their Capital. But what did affect the people to a marked degree was the subsequent Plan of Iguala, whereby the new Government of Mexico decreed that in the future no single inhabitant would be referred to by racial origin as heretofore by Spanish law, either in civil or ecclesiastical records. All were to be referred to as Mexican Citizens. New Mexican Hispanos readily accepted the term "Mexican," but the ones who were really overjoyed by it were the Genizaros. For no longer would they feel themselves to be second-class citizens; as *Mexicanos* they now stood on equal footing with their former *patrones*. And yet, the only revolt against the Mexican regime was staged by these Genizaros in 1837, as a protest against Mexican taxation laws. This revolt was quickly quelled by the Hispano element under Manuel Armijo, who succeeded as governor when the one sent from Mexico was murdered by the insurgents. Internal politics in New Mexico now received a new impetus.

After this, one would expect that soon all of New Mexico's people would become integrated in language, customs, and national aspirations with the rest of the Mexican Republic. But this did not happen. Hardly any true Mexicans came up to take up residence, and the few who did were absorbed by the local way of life and speech. And only twenty-five years later, in 1846, the United States took over New Mexico and the entire Southwest. Only romantically attached to Spain, and as yet very loosely bound to Mexico, New Mexico's people quickly accepted the Anglo-American intrusion, as it seemed to promise a better future than either Spain or Mexico had provided. True, a few Hispanos plotted a rebellion, but this fizzled out and the plotters were pardoned by an American court for having acted as "patriots" and not mere rebels. This made a deep impression on them and the population at large, for under other regimes it would have meant prompt execution. Subsequently, their leaders began taking part in American civic and military affairs. Economically, sad to say, the common folk were at a great disadvantage for a long time, and many still are, due to an antiquated pastoral outlook and illiteracy, which could not cope with the Anglo-American newcomers who were children of the new industrial age.

But a good number of their leaders were able to compete in commerce as well as politics. In military matters, some even attained general and field grades in the Union Army during the American Civil War. Some married Anglo women, while some of their women married Anglo officers and soldiers in the heydey of Fort Marcy and Fort Union. [illegible] more Anglo-Americans married females of Genizaro derivation (perhaps finding them more charming, as American soldiers and other Anglos did later in World War II and since than girls of purer Hispanic derivation). Since those days, some moved on the Pacific coast or up to Colorado with their families, while others returned back East with them. And so Hispanic New Mexico in the past hundred years has given its mite to the general melting pot of the United States.

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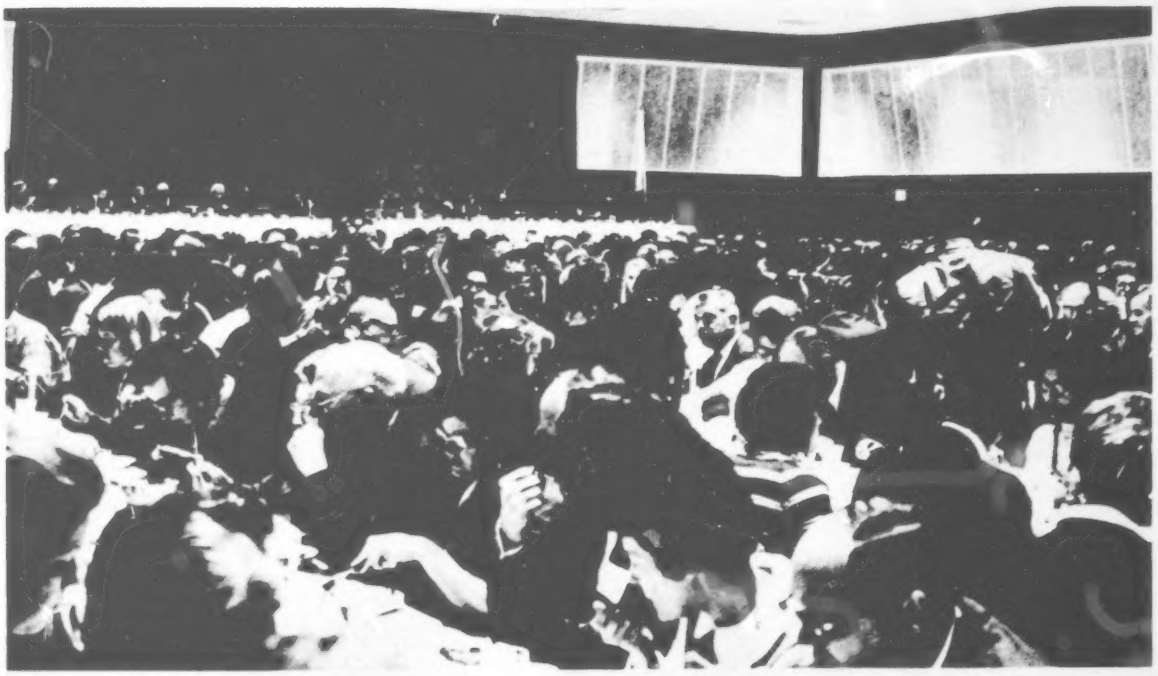
In short, New Mexico quickly became a willing enclave of the United States, all of her citizens of whatever economic or social level deeming themselves true and loyal citizens. And what they evidently liked best, the poor as well as the more affluent, was the game of politics within the framework of the Democratic and Republican parties; it has become New Mexico's chief indoor and outdoor sport with all the shenanigans connected with it. And yet, all the people have hung on



The symposium luncheon featured Father Chavez as guest speaker. Approximately 1,100 persons dined in the Corbett Center ballrooms.

to their own Hispanic pastoral culture, bare though it be, as a distinct heritage in which to pride themselves. Having been under Mexico for such a brief period, and therefore lacking Mexican national aspirations and culture, they now prefer to call themselves Hispanos or Spanish-American for lack of a better term.

Hence today, the authentic Spanish New Mexican, with whatever racial admixture—whether Genizaro, Mexican, Anglo or what-have-you—considers himself a United States citizen first, then a Spanish-American; this in spite of the bigotry of some Anglos down the years, whom I like to refer to as Ugly Americans. (This term was coined by Anglos, not by me.) Spain is but a romantic dream, to be resurrected with her royal red and gold colors during the annual Santa Fe Fiesta. Mexico is a great nation south of us whose tricolor is to be respected and flown on festive occasions with that of Spain and the State of New Mexico on either side of the American flag. But neither the banners of Spain or of Mexico, when passing by on parade, bring a lump to their throats as do the Stars and Stripes for which they have willingly fought in every national crisis since the War between the States. For their education has always been within the American system, and they know little or nothing of Mexican history. Consequently, they never learned to hate the United States as the Colossus of the North. Being Catholics for the most part they love the Virgin Mary in her title and image of Guadalupe as one more beautiful symbol of Christ's Mother, but not with the fervor of the Mexican national for whom she connotes national freedom as much as religious cult.

This is why, for example, New Mexicans as a whole have not risen to the call of people like the Tijerinas, who are of Mexican origin with an inborn hate of the Colossus of the North. Of course the New Mexicans know that in times past some of their ancestral grazing lands were taken from them by legal trickery, and not only by more worldly-wise Anglo-Americans but by rapacious ingrates of their own race. Those who follow any demagogues now are, in the main, poor descendants of Genizaros who still hold a grudge from long ago, or some few people of recent Mexican origin who now live in the northern part of the state. (And let us not forget the Anglo instigators.)

It is most true that in other sections of our Southwest, the descendants of the very last Hispanic thrust—that is, of immigrants from Mexico—have not fared so well at the hands of Waspish Anglos, the ones who wave the flag but deny other peoples their civil rights. For one thing, these Mexican Americans themselves feel that they are in a foreign country, and they harbor an inborn distrust of the Anglo from the history of the land of their forefathers. This makes for greater tension and sensitivity. Now, these good Mexican people often complain that the native people of New Mexico not only hold themselves aloof from the social and economic problems of *La Raza*, but are ashamed to acknowledge themselves as Mexicans. I don't think that any of them are ashamed of the name itself; it is that they are confident in the fact that their New Mexico is their own

ancient homeland where the Anglo is the immigrant, and they are loathe to part with their very own historical traditions, both Hispanic and U.S. American. And so, what I have said until now is to explain these reasons from a historical point of view, not to say whether or not they should join hands with their Mexican-American brothers in their rightful struggle. Perhaps they might have to in the long run, if the ever-growing number of Anglo-Americans moving West turn out to be "Ugly Americans" rather than "Real Americans," as they themselves are real Americans.

To conclude, it has been said that blood is thicker than water, but it seems as though one's cultural background in one's very own homeland of centuries is thicker than blood.

Man and his Environment — An International Viewpoint

Martin H. Gonzales

We are living at a time when the terms ecology and environment are becoming commonly used words in many countries of the world. Every day, the number of articles, speeches, bulletins, and lectures concerning environment increases. Millions of people have expressed their viewpoints on what the situation is at the present time, and what should be done in order to improve and preserve man's environment. We are finally realizing that we have treated our land as if its resources were limitless, and we are finding that our land is finite, while our population is growing.

The advent of the atomic era has placed still more emphasis on the already vital theme of the environment. The promise and the menace of atomic energy, and the promise and the menace of demographic explosion, have relocated the problems of the environment in front of man's thoughts. It is necessary for all young scientists, and all persons as well, to be familiar with the total environmental processes and conditions that make life possible.

I approach the subject of "Man and His Environment" with a sincere feeling that all members of society, from all walks of life, however modest their contribution may be, must participate in deliberation and in a joint analysis and exchange in human experience, to seek the solutions to a situation which no longer can be regarded as the fate of mankind: hunger for half of the people of the earth. The prospect of world hunger seems more and more to occupy the minds of men throughout the world as population pressures increase and the rising aspirations of people make themselves felt. Earlier this was a field of activity reserved only for members of the most sophisticated and developed nations. Now it seems that there is a universal awareness of the problem, for it tacitly recognizes that all peoples must address themselves to it, and that solutions may come from within, as well as outside the nations undergoing change.

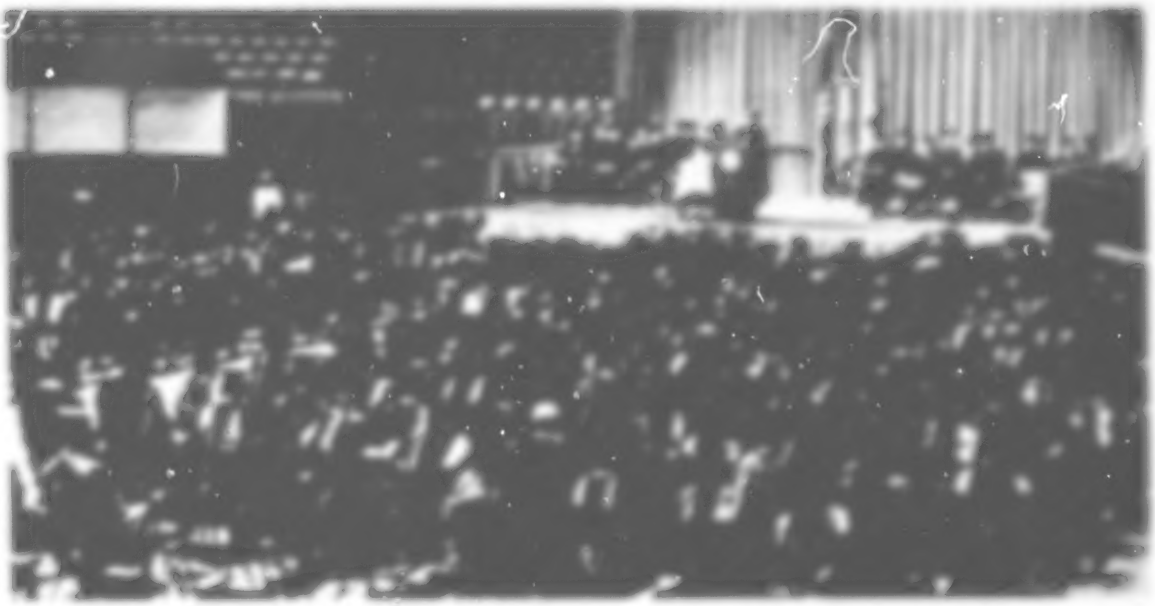
We have to recognize that the problem of world hunger is not only one of production as related to population. It is also partly mental attitudes toward change, a decision making process, and the will of the people.

Man is not a nebulous entity; he is an animal: *Homo sapiens* and like all animals, he must be supplied with certain environmental elements to subsist. Without adequate water, air, food, temperature, and space, man will perish just like any other animal that is deprived of its basic ecological needs. Man is not a simple animal, and his environmental needs are, therefore, correspondingly complex. True, if he has the basic requirements to carry on his physiological processes, he can exist, but to man, mere existence is not enough. He must be supplied with a total environment, with all the social, educational, and cultural needs to not only exist like an animal, but to grow and be fruitful to the extent of his potential. These environmental factors do not just happen; they must be developed for him. They must be supplied in an unrestricted condition so man's development will not be restricted. His own mind can dictate what environmental needs must be developed for the future generations of men that will follow.

Dr. Martin H. Gonzales is a range management specialist and ecologist whose professional commitments have taken him throughout the United States and Mexico and as far as Russia and Nigeria. He is head of the department of range management of the National Institute of Animal Research of Mexico and is founder and director of the experimental ranch, La Campana, in the state of Chihuahua.

Dr. Gonzales received his undergraduate degree in engineering agronomy at the Technological Institute of Monterrey, Mexico, his M.S. from Texas A & M University, and his Ph.D. from Utah State University. He has published widely in the fields of range management, ecology, and environmental studies, both in Mexico and the United States. He is general coordinator for northern Mexico for the Technical Commission for Inventory of Range Resources and Productivity.

Dr. Gonzales is married and the father of two children. He resides in Chihuahua, Mexico.



Faculty members, wearing the hoods bearing the colors of the school from which they graduated, add to the pageantry of the inauguration ceremony.

Biologist tell us that ontogeny recapitulates phylogeny: that the development of the individual parallels the steps in the development and evolution of the species. If we can supply man with complete and unrestricted environmental needs, we can not only develop a productive and fruitful man during our generation, but we can lay the groundwork for the evolution of man into a complete and free individual in a complete society. In developing a total environment for man, let us not forget the basic needs, when man, the animal, is hungry, his primary concern is in obtaining food. With his water and air supply limited or contaminated, he has little time to think of educational, social, and, cultural values and needs.

Present generations can be considered lucky to live in an era of great urban comfort and of scientific and technological advances without precedent, advances that resulted in tremendous increases in agricultural and industrial production. In the less developed countries, and speaking particularly of Latin America, the application of these advances have not reached a substantial point, even more, they are virtually unknown in many countries of the world. Even when the potential exists to obtain significant improvements in the countries' national agricultural production, we cannot deny the fact that many of our natural renewable resources are in serious danger, because the people have not given them attention to date.

Illiteracy is, perhaps, the main reason for the inattention. In many of our Latin American countries illiteracy rates are alarmingly high. On the other hand, it is healthy to observe how the governments allocate higher and higher budgets to education as time progresses. Observe an even healthier sign: in the last decades, the national budgets for education have been higher than those dedicated to the armed forces. In a democracy it is not enough to have a few trained persons who understand what is going on; there must also be an alert population assisting their knowledge, research, and action be properly integrated.

In the scientific field today, students are bombarded with affirmations about the great need of trained persons in different fields. In the environmental field, we could say that the need is desperate, simply because the power and the will of man to alter environments have increased at a faster rate than the understanding by man of such environment. The present situation of our environment—air and water pollution, overgrazing, deforestation, erosion—is a tragic testimonial to the fact that, in dealing with natural resources we must work with, not against, nature.

We sincerely believe that education is the key for the development and well-being of mankind. It is impossible to expect that poor, hungry, and illiterate people understand all the problems related to the improvement and conservation of natural resources, while there exist a thinking of how to obtain the daily subsistence.

In the developed countries, the financial, technical, and human resources have made high living standards possible; this, I believe, is the result of basically two things: education and the will to work. Modern society demands the type of *homo sapiens* with education and the will to work.

Man and his Environment — The University Role

Gerald W. Thomas

I want to take this opportunity to outline what I consider to be the role of the university to service to man, with varying cultural backgrounds, and the environment.

New Mexico State University has assumed a leadership role in three major areas of responsibility: teaching, research, and public service. Our response each of these responsibilities is relative to the tremendous challenge of improving the welfare of man in the environment.

The major products of the university, and the best measure of success of the institution, are the students who move into society after a certain period of academic training, hopefully well-prepared and with the necessary tools to make the world a better place to which to live and work. As we examine our students we must admit that variation is the most easily recognized phenomenon. Variation among individuals on campus is one of the primary sources of frustration for administrators, teachers, and for many fellow students. But in addition we also find the greatest opportunity for progress and excellence in our society.

Today's young people are the best informed, most perceptive, and possibly least materialistic of any generation in our history. They are deeply concerned about the problems of society and are important to bring about change. Some do not have a clear understanding of the functions and accepted procedures of our social, economic, and political systems, but only a very small minority feel that violence is a necessary substitute to orderly education in bringing about change in society. I'm proud of our students here at New Mexico State University.

The university is involved in and concerned with the development of diversified excellence, capitalizing on the various backgrounds and the various interests of our young people. With our five branch campuses we offer programs from one-year technical training through the doctorate in many fields of academic interests. Curricula have been designed to train students for positions in a broad spectrum of activities, and we are trying to reach out to all ethnic and cultural groups in the state.

The real strength in American education, in contrast with the highly selective European system, is that we have made a serious attempt to carry all students to the highest level possible, to educate the masses. Dr. John W. Gardner recently has commented that we have built pluralism and philosophers, and really we provide quality education for both, and we must not sacrifice one to build more. This statement is appropriate for New Mexico State as we strive to strengthen a wide variety of programs here at Las Cruces, at Alamogordo, Grants, Farmington and Carlsbad.

As we analyze man and the environment, we cannot ignore the fact that the world-wide population explosion is real and threatening, posing not only serious problems to our limited resource base, but placing additional pressure on educational institutions all over the world. Even with the decline in United States birth rates, we are expecting the college enrollment to increase over fifty

As seventh president of New Mexico State University, Dr. Gerald W. Thomas heads an organization with more than 15,000 students annually and more than 1,000 staff and faculty members. The university is involved in operations throughout the nation and in many other countries.

Dr. Thomas has received international recognition in the fields of agriculture, ecology, and resource management. He has worked with Mexico and Latin America on the good-neighbor program, range management and arid lands improvements. He has been a consultant for the U.S. Department of Agriculture in various research programs in various parts of the United States. He has also had assignments in Greece, Arab, Africa, South America, and numerous other countries.

Dr. Thomas received his B.S. in Forestry from the University of Idaho, his M.S. and Ph.D. from Texas A & M. He and his wife Joan have three children.

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